

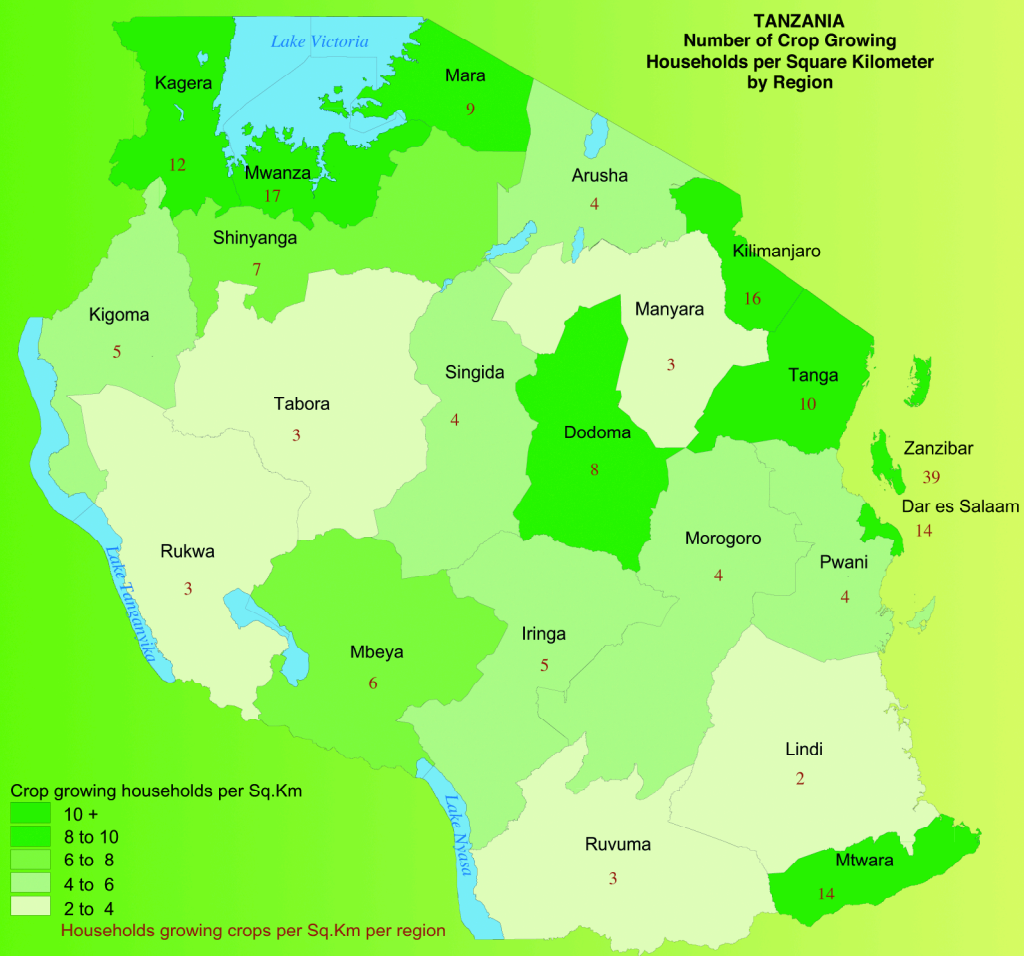
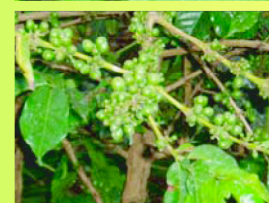


United Republic of Tanzania

NATIONAL SAMPLE CENSUS OF AGRICULTURE 2002/2003

SMALL HOLDER AGRICULTURE

Volume II: CROP SECTOR – NATIONAL REPORT



National Sample Census of Agriculture 2002/2003 - Smallholder Agriculture

National Bureau of Statistics, Ministry of Agriculture and Food Security, Ministry of Water and Livestock Development, Ministry of Cooperatives and Marketing, Presidents Office, Regional Administration and Local Government, Ministry of Finance and Economic Affairs – Zanzibar

June -2006





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ABBREVIATIONS

ASDP	Agricultural Sector Development Programme
CSPro	Census and Survey Processing system
SPSS	Statistical Package for Social Sciences
CSTWG	Census and Surveys Technical Working Group
EU	European Union
DADIPS	District Agricultural Development and Investment Projects
DFID	Department for International Development
FAO	Food and Agriculture Organisation
GDP	Gross Domestic Product
ICR	Intelligent Character Recognition
IEC	Information, Education and Communication
JICA	Japan International Cooperation Agency
MAFS	Ministry of Agriculture and Food Security
NBS	National Bureau of Statistics
NSGRP	National Strategy for Growth and Reduction of Poverty
NGO	Non Government Organisations
OCCS	Office of the Chief Government Statistician in Zanzibar
PORALG	President's Office, Regional Administration and Local Government
SAC	Scotts Agriculture Consultancy Ltd.
UNDP	United Nations Development Programme
ULG	Ultek Laurence Gould Consultants

PREFACE

At the end of the 2002/03 Agriculture Year, the National Bureau of Statistics and the Office of the Chief Government Statistician in Zanzibar in collaboration with the Ministries of Agriculture and Food Security; Water and Livestock Development; Cooperatives and Marketing as well as the Presidents Office, Regional Administration and Local Government (PORALG) conducted the Agriculture Sample Census for 2002/2003. This is the third Agriculture Census to be carried out in Tanzania, the first one was conducted in 1971/72, the second in 1993/94 and 1994/95 (during 1993/94 data on household characteristics and livestock count were collected and data on crop area and production in 1994/95).

It is considered that this census is one of the largest to be carried out in Africa and indeed in many other countries of the world. For the crop sub-sector, the census collected detailed data on all annual and permanent crops. It also collected comprehensive input use, storage, processing, marketing, tree farming and erosion control and extension services. As a result, the crop report from this census is much more detailed than the previous censuses' reports and, for the first time, has a conclusion and makes recommendations.

In addition to this, the census was large in its coverage as it provides data that can be disaggregated at district level and therefore allow comparisons with the 1998/99 District Integrated Agricultural Survey. The census covered smallholders in rural areas only and large scale farms. This report presents data disaggregated up to regional level and it focuses on crops grown kept by smallholders. For the first time, it includes figures for Zanzibar. The analysis in the report includes time series comparisons using data from the previous censuses and surveys.

The extensive nature of the census in relation to its scope and coverage of the crop sub-sector is a result of the increasing demand for more detailed information to assist in the proper planning of this sub-sector and in the administrative decentralization of planning to district level. It is hoped that this report will provide new insights for planners, policy makers, researchers and others involved in the agricultural sector in order to improve the prevailing conditions faced by crop producers in the country.

On behalf of the Government of Tanzania, I wish to express my deep appreciation for the financial support provided by the development partners, in particular, the European Union as well as DFID, UNDP, Japanese Government, JICA and others who contributed through the pool fund mechanism.

Finally, my appreciation goes to all those who in one-way or the other contributed to the success of the survey. In particular, I would also like to mention the enormous effort made by the Planning Group composed of professionals from the Agriculture Statistics Department of the National Bureau of Statistics, the Office of the Chief Government Statistician in Zanzibar and the Statistics Unit of the Ministry of Agriculture and Food Security with technical assistance provided by Ultec Lawrence Gould, Scotts Agriculture Consultancy Ltd and the Food and Agriculture Organisation of the United Nations.

Additionally, I would like to extend my appreciation to all professional staff of the National Bureau of Statistics, the sector Ministries of Agriculture and PORALG, the Consultants as well as Regional and District Supervisors and field enumerators for their commendable work. Certainly without their dedication, the census would not have been such a success.



Cletus P. B. Mkai

The Director General

National Bureau of Statistics

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EXECUTIVE SUMMARY:

Of the total 4,901,837 rural agriculture households in Tanzania, the number of crop growing households in the country was 4,858,810 representing 99 percent of the agriculture households. Sixty four percent of the households only grow crops whilst 35 percent grow crops and keep livestock. Shinyanga, Mbeya, Kagera, Mwanza and Dodoma have the highest number of crop growing households, whereas Dar es Salaam, Zanzibar, Pwani and Lindi have the lowest number. However, in terms of number of households per square kilometer, Zanzibar, Mwanza, Dar es Salaam, and Kilimanjaro have the highest number of crop growing households per square kilometer. In general, the regions with the lowest number of households growing crops also have a low numbers of livestock keepers. The number of households growing crops has increased by 32 percent over a period of 9 years (3.5 per year).

The total land area allocated to smallholders either through formal titles or customary rights is 11,999,071 ha, (2.4 ha per household). Of this, each household uses an average of 2.0 ha, however there are large regional variations with Shinyanga utilizing around 3.4 ha per household and Kilimanjaro with only 1 ha per household. The total land area allocated to smallholders has not changed over the last 10 years (12,227,840 in 1994), however the area of land utilized per household has increased by 186 percent and the area of land utilization is almost the same as the area of allocated land. Additionally around 50 percent of households reported insufficiency of land. The results of the census strongly indicates that there is real pressure of land and if land utilization continues to increase, serious encroachment into undesignated land will occur. This has just been identified on time and the monitoring and enforcement of the laws associated with designated land areas needs to be stepped up.

The total planted area with annual crops is 7,818,620 and the planted area per household is 1.61 ha. The planted area in the short rainy season was only 19 percent of the total planted area. Twelve of the 21 regions plus Zanzibar did not get a short rainy season, however in Mwanza and Kagera the short rainy seasons were more important than the long rainy season. Mwanza region had the highest planted area in Tanzania mainly due to getting good short and long rainy seasons.

Mono-cropping of annual crops is the dominant farming practice, followed by annual mixed cropping. Permanent crops are important in Kagera, Ruvuma, Mtwara, Zanzibar, Pwani, Tanga and Lindi.

Maize is the most important crop in the country and it has a planted area 4.25 times greater than cassava which has the second largest planted area. This is followed by beans, paddy, sorghum, cashew nuts, groundnuts, cotton, bananas, coffee, sweet potatoes and mangoes.

Cereals are the most important crop type in Tanzania, mainly due to the aforementioned dominance of maize production. Roots and tubers are next, mainly due to the large planted area of cassava. These are followed by pulses, of which beans are the most important, then oilseeds which is dominated by groundnuts and then cash crops with cotton and tobacco being the most important.

A total of 2,613,970 tonnes of maize was produced from a planted area of 3,465,173 ha resulting in a low yield of 0.75 tonnes per hectare. Time series analysis shows that since the last agriculture census in 1994, there has been a large increase in the planted area for maize from 1,203,000 hectares to 3,465,173, however there has only been a small increase in production over the same period and as a result of this, there has been a rapid decline in the yield from around 1.25 tonnes per hectare to 0.75 tonnes per hectare in 2003 with the main period of yield reduction occurring over the period 1994 to

1998. All other cereals followed the same trend in relation to the increase in planted area and reduction in yield over the same period.

In contrast to this, beans and groundnuts, whilst following the same pattern of increased planted area (from around 100,000 ha in 1994 to 750,000 ha in 2003 for beans and from about 75,000 ha in 1994 to 350,000 ha in 2003 for groundnuts), there has been a large increase in the production of these crops from 26,000 tonnes in 1994 to 330,000 tonnes in 2003. The resultant yield for both crops has been constant over the same period.

The main difference between maize and beans/groundnuts is that maize has a high requirement for Nitrogen, whilst beans and groundnuts manufacture their own Nitrogen and the comparison of planted area, production and planted area between these crops gives a clear indication that the reason for the large decline in productivity in cereals is directly due to a decline in the use of fertilizers since the previous census in 1994. This is further supported by time series data on fertilizer use which shows a 50 percent reduction in the number of households using fertilizers over the intercensal period. The main reason for not using fertilizers was related to cost.

This is probably the most important finding of the census in relation to reduction of poverty and moving from smallholder subsistence agriculture into self sustaining profit making farms, therefore it is imperative that the cost of fertilizers be set at a price where the cost benefit of using them results in increased profit. The failure to do this will result in continuing poverty in the rural areas of Tanzania.

The most important regions for the production of fruit and vegetable are Morogoro and Iringa, especially for tomatoes and cabbage and Arusha especially for onions. The main cash crops are cotton and tobacco. Cotton had a production of 181,073 tonnes, 60 percent of which was grown in Shinyanga region, whilst the production of tobacco was 49,300 tonnes and mostly grown in Tabora region.

The planted areas of permanent crops is 1,360,309 ha and are grown by 2,364,277 smallholder households. As with annual crops a larger planted area is grown by smallholders compared to large scale farms. Cashew nuts have the largest planted area compared to other permanent crops with 414,520 ha and 30 percent of the total area planted for permanent crops. This is followed by bananas with a planted area of 319,616 ha and coffee, 180,649 ha. Mtwara has the largest planted area with permanent crops followed by Kagera, Mbeya, Ruvuma and Kilimanjaro. Rukwa, Singida, Tabora and Mara have the smallest area under permanent crops.

Cashew nuts are mainly grown in Mtwara with 50 percent of the national total planted area with cashew nuts. Kagera is the main region for banana production with 34 percent of the total planted area with banana. Kilimanjaro and Mbeya are also important banana producing regions. Coffee is mainly grown in four regions (Mbeya, Kigoma, Kilimanjaro and Ruvuma). Mangoes are grown in most regions of the country with Shinyanga having the largest planted area compared to other regions. Pigeon peas are mostly grown in Manyara, Dodoma and Lindi. Coconuts are predominantly found in Pwani and Tanga. Morogoro is the main region for the production of sugar cane with 56 percent of the planted area of sugar cane in the country. The main region for oil palm is Kigoma.

The area under irrigation is very small with an annual crop planted area of only 186,006 ha, 2.4 percent of the total area planted with annual crops. Mbeya, Iringa, Arusha and Kilimanjaro have the largest planted area with irrigation. The planted area with irrigation has remained stagnant since the last census and there has been a noticeable reduction in the

number of households practicing irrigation in Kilimanjaro. Of the total irrigated area 34 percent is applied to maize, 32 percent paddy and 12 percent each for tomatoes and beans. However, a higher percent of irrigation is applied to fruits and vegetables than any other crop type. Rivers are the main source of water for irrigation with gravity being the most common method of obtaining water and flood the most common means of field application.

Land clearing is predominantly done by hand slashing. Soil preparation is also mostly done by hand (56% of the total planted area) however a substantial amount is by oxen (32% of the planted area). Only a small area is cultivated using tractors (4%). Arusha has the smallest area cultivated by hand and this is followed by Manyara. Shinyanga has the largest area cultivated by oxen. Only 16 percent of the total planted area is with improved seed with cereals having 54 percent of the total planted area with improved seed. Improved seeds are most commonly used with cash crops and vegetables.

Fertilisers were applied to only 23 percent of the total planted area and 13 percent of this was with farm yard manure. Only 6 percent was with inorganic fertilizers. The highest percent of planted area with fertilizers was in Kilimanjaro, Ruvuma and Iringa. Iringa and Ruvuma had the largest area planted with inorganic fertilizer. Very small areas had pesticide applications. Of the total area with pesticides 68 percent was with insecticides, 18 percent herbicides and the 14 percent with fungicides.

Maize is stored by more households than any other crop. This is followed by beans and pulses, paddy, sorghum/millet and groundnuts/beans. The most common period of storage is 3 to 6 months but this is closely followed by over 6 months. The most common means of storage is in open drums/sacks and traditional storage cribs. Other means of storage are not common, however it is worth noting that the most common means of storage in Kilimanjaro is in airtight drums. The main reason for the storage of food crops is for home consumption, followed by seed. For cash crops the reason for storage is for a higher price. The reported storage loss was relatively low with maize having the highest percent loss at 7 percent and paddy with the lowest percent loss at 2 percent.

Seventy percent of the crop growing households reported selling crops. Ruvuma has the highest percent of crop growing households that sell crops. Low market price is the main marketing problem facing smallholders. Apart from low prices, the main marketing problems were related to access to markets (for instance the market is too far, the transport cost too high and no transport). Of the 30 percent of crop growing smallholders that did not sell, the over-riding reason was that their production was insufficient to sell.

Agro-processing is carried out by 89 percent of the crop growing households in Tanzania, however, whilst most regions have over 80 percent of households processing crops, Dar es Salaam and Pwani have less than 40 percent and Arusha less than 60 percent. The main processed product is flour, with bran being the most common bi-product. Most processing is done on neighbours machine (73 %) followed by hand (17%). The highest percent of manual processing was in Dar es Salaam region, Pwani region and Zanzibar. Only 5 percent of the processed product was sold. Most processing is done for household use/consumption. Processed products that are sold are mostly sold to neighbours and local markets

Outreach by the extension was reported to be relatively high especially in Dar es Salaam, Iringa, Kilimanjaro and Kigoma. The lowest numbers of households receiving extension were in Lindi, Rukwa, Mtwara and Zanzibar. The government provides 95 percent of extension, with only 1 percent being provided by large scale farms. A low to moderate number of households received extension in the high crop production regions of Shinyanga, Tabora, Morogoro and Mwanza. The interventions that require no costs are the most commonly adopted.

Access to manual implements is predominant, however in regions with a large number of livestock there is a correspondingly high number of animal draft equipment. Tractors are more common in Kilimanjaro and Morogoro than other regions. The major source of financing these implements is through the sale of crops.

Thirteen percent of households have planted trees on their land, with the Eucalyptus and Pinus being the most planted. Iringa has the highest number of trees planted by smallholders with Pinus being the main species. Mbeya, Kagera and Ruvuma are also important with eucalyptus and cyprus being the dominant species. Most of the trees are planted in plantations (78%) with only 10 percent scattered in fields and 12 percent in field boundaries. The main purpose of planted trees is for planks/timber followed by wood for fuel and shade.

Ten percent of the total number of agriculture households has erosion control/waterharvesting structures on their farms. Most of these structures are in the highland areas of Kilimanjaro, Iringa, Arusha, Mbeya, Manyara and Tanga. The most common facility is the erosion control bunds.

The following key findings/recommendations are a result of the analysis of the census together with time series analysis and are detailed in the conclusion section of the report:

- There has been a large reduction in productivity of cereals since the last census and this is directly associated with a reduction in the use of fertilizer due to its high price.
- Access to land has become a major problem. Two to three times more land was utilized in 2003 compared to 1994 and practically all the land that is allocated to smallholders is utilised. Any further increase in planted area will be into areas not designated for crop production.
- For most smallholders, the area under production per household is insufficient for the conversion into self supporting profit making entities and this can only be achieved by land consolidation.
- There has been no growth in the number of households with irrigation in the last 10 years.
- With the almost negligible use of chemicals in crop production in Tanzania, certified organic farming areas should be established and encouraged.
- Whilst some tree planting is practiced by small holders, it should be further promoted. Trees are an extremely valuable resource and methods of incorporating tree farming to substitute food crop production should be promoted.
- Large scale farms are important in providing services to attached out-growers but they are not going to be able to assist the majority of smallholders in the country.
- In terms of productivity, the crop sector has not only stagnated, it has got less productive. In order to assist smallholders to move away from subsistence, direct support is required in the form of start up capital and input subsidies.
- The frequency of surveys in the past has provided essential data for identifying trends and making recommendations. It is important that these frequent surveys be reinstated.
- Whilst the Department of Extension Services has a relatively high contact rate it has not had a real impact. The central sector Ministries of Agriculture should be instrumental in replacing the package delivery system currently in place with an advisory system. Information systems can assist in this transformation and sourcing and development of these should be promoted.

COUNTRY PROFILE

Introduction

This part of the report presents a short profile of Tanzania giving general information on land, climate, administrative set-up and population.

- Geographical Location

Tanzania lies south of the equator between the great lakes Victoria, Tanganyika and Nyasa on one hand and the Indian Ocean on the other. It has frontiers with Kenya and Uganda in the north, Rwanda, Burundi and Democratic Republic of Congo in the west, and Zambia, Malawi and Mozambique in the south. Tanzania is located in the Eastern Africa region between longitudes 29 and 41 degrees East, latitudes 1 and 12 degrees South.

- Land Area

Its total area of Tanzania is approximately 945,000 sq. km which includes approximately 60,000 sq. km. of inland water. Out of the 945,000 sq. km., over 100,000 sq. km. are devoted to reserves and national parks. The area of planted arable land is 9.5 million hectares.

- Geographical Features

The country has a vast central plateau sloping down towards the Indian Ocean. Except for a narrow belt along the 900 kilometers of the coastline, most of the land lies above 200m altitude, and much of the country is higher than 1,000 meters above sea level. In the north Mt. Kilimanjaro, with a permanent ice cap, rises to over 5,500 meters with the highest peak Kibo reaching 5,895 meters. A distinctive feature of Tanzania is the rift valley. The great valley runs from near the mouth of the Zambezi river northwards through Tanzania, Kenya, Ethiopia and across the Red Sea to Israel. Woodland, bushland and grassland, are the predominant types of vegetation.

- Climate

The main climatic feature is the long dry spell from May to October, followed by a period of low rainfall which is often concentrated into relatively few days of heavy showers. The main rain season on the coast is from March to May but there is a second season from October to December. Total rainfall increases towards the north. Around lake Victoria, rainfall is well distributed throughout the year with a peak during March to May.

October to mid-March is the hottest period and from June to September the coolest. However, the range of temperatures is fairly limited and it is always hot between 25 and 30 degrees centigrade on the coast and between 22 and 27 degrees centigrade in the north.

- Administrative Set-up

Tanzania Mainland is divided into 21 administrative regions namely; Dodoma, Arusha, Kilimanjaro, Tanga, Morogoro, Pwani, Dar es Salaam, Lindi, Mtwara, Ruvuma, Iringa, Mbeya, Singida, Tabora, Rukwa, Kigoma, Shinyanga, Kagera, Mwanza, Mara and Manyara. Each region is divided into districts (rural and urban). In total there are 119 administrative districts and five cities - Dar es Salaam, Mwanza, Mbeya, Tanga and Arusha.

The country has 120 ethnic groups with Kiswahili as their official language. English is however widely spoken.

- **Population**

The last population census was conducted in August 2002. According to the 2002 census, the population of Tanzania Mainland was 34.6 Million giving an annual growth rate of 2.9 percent.

- **Agriculture**

The country's economy is heavily dependent on agriculture, which accounts for about 45% percent of the GDP (the value of all goods and services produced by all factors of production resident in the country in one year) and about two-thirds of the total exports.

The country has a dual agricultural economy that is the smallholder sub-sector and the commercial/large-scale sub-sector. Smallholder farmers who dominate the agricultural sector are estimated to be 4.8 million according the 2002/03 Agriculture Sample Census. These agricultural holders carry out rain fed agriculture, producing a variety of crops mainly for subsistence purposes. These holders account for most of the food produced in the country.

The main food crops grown in the country are maize, sorghum, millet, cassava, sweet potatoes, bananas, pulses, paddy and wheat. Cash crops are also grown in Tanzania, the country was once the world's leading producer of sisal, but the introduction of synthetic fiber depleted the market. Besides sisal, the other cash crops grown are coffee, tea, tobacco, cotton and cashew nuts. On average the crop sub sector contributes about 34.8% percent of the Agricultural GDP according to the 2003 economic Survey.

1. INTRODUCTION

1.1 Introduction

The agricultural sector is the main source of employment and livelihood for more than two-thirds of the Tanzanian population. It is an important economic sector in terms of food production, employment generation, production of raw material for industries, and generation of foreign exchange earnings. It accounts for about 46 percent of GDP (Economic Survey, 2004). The contribution of crop production to GDP was 36.5 percent during the 2004 year.

Having a diversity of climatic and geographical zones, Tanzania's farmers grow a wide variety of annual and permanent crops. The country grows a large number of food crops including maize, cassava, beans, banana, paddy, sorghum and millet. In addition smallholders produce a variety of fruits and vegetables such mangoes, oranges, water melon, tomatoes, potatoes, egg plants, etc. Permanent crops like coffee, tea, spices, etc. are also grown. Coffee which is grown on estates and by smallholders is a major export crop. Cotton, cashew nuts and tobacco are also grown by smallholders for export. Smallholders in Tanzania mainly carry out rain-fed agriculture for subsistence purposes. The commercial large scale sub sector is very small (1206 holdings) and produces some of the export crops in the country (coffee, tea, sisal, sugar, etc.).

The present report analyses the data related to land ownership, land use, crop production, input use, storage, processing, marketing, investment in agriculture and access to inputs and services for the crops produced in the country.

This report (Volume II) covers the crop sector at national and regional levels and includes Zanzibar estimates. Other Census reports include the Technical Report (Volume I), Livestock Report (Volume III), Smallholder Household Characteristics and Access to Natural Resources Report (Volume IV), 21 Regional Reports for the Mainland (Volume V), Large Scale Farms Report (Volume VI) and a separate report for Zanzibar (Volume VII). In order to address the specific issue of gender, a separate thematic report on gender has been published. Other thematic reports will be produced depending on the demand and availability of funds. In addition to these reports two dissemination applications have been produced to allow users to create their own tabulations, charts and maps.

This report is divided into four main sections: Introduction, Results, Conclusions and Appendices. The definitions relating to all aspects of this report can be found in the questionnaire (Appendix I).

1.2 Background Information

In 2003, the Government of Tanzania launched the Agricultural Sample Census as an important part of the Poverty Monitoring Master Plan which supports the production of statistics for advocacy of effective public policy, including poverty reduction, access to services, gender, as well as the standard crop production data normally collected in an agriculture census. The census is intended to fill the information gap and support planning and policy formulation by high level decision making bodies. It is also meant to provide critical benchmark data for monitoring ASDP and other agriculture and rural development programs as well as prioritising specific interventions of most agriculture and rural development programs.

Following the decentralisation of the Government's administration and planning functions, there has been a pressing need for agriculture and rural development data disaggregated at regional and district levels. The provision of district level estimates will provide essential baseline information on the state of agriculture and support decision making by the Local

Government Authorities in the design of District Agricultural Development and Investment Projects (DADIPS). The increase in investment is an essential element in the national strategy for growth and reduction of poverty.

1.2.1 Census Objectives

The 2003 Agriculture Sample Census was designed to meet the data needs of a wide range of users down to district level including policy makers at local, regional and national levels, rural development agencies, funding institutions, researchers, NGOs, farmer organisations, etc. As a result the dataset is both more numerous in its sample and detailed in its scope compared to previous censuses and surveys. To date this is the most detailed Agricultural Census carried out in Africa. The census was carried out in order to:

- Identify structural changes if any, in the size of farm household holdings, crop and livestock production, farm input and implement use. It also seeks to determine if there are any improvements in rural infrastructure and in the level of agriculture household living conditions;
- Provide benchmark data on productivity, production and agricultural practices in relation to policies and interventions promoted by the Ministry of Agriculture and Food Security and other stake holders.
- Establish baseline data for the measurement of the impact of high level objectives of the Agriculture Sector Development Programme (ASDP), National Strategy for Growth and Reduction of Poverty (NSGRP) and other rural development programs and projects.
- Obtain benchmark data that will be used to address specific issues such as: food security, rural poverty, gender, agro-processing, marketing, service delivery, etc.

1.2.2 Census Coverage

The census covers both large and small scale farms. This report covers small scale farms in detail with some summary data on large scale farms in order to provide complete national estimates for some variables. Data was collected from a sample of 53,070 small scale farmers of which 48,315 were from the Mainland and 4,755 from Zanzibar. Data was also collected from 1,254 Large Scale Farms (1,206 on the Mainland and 48 in Zanzibar) on a complete enumeration basis.

1.2.3 Census Scope

The census covered agriculture in detail as well as many other aspects of rural development and was conducted using three different questionnaires:

- Small scale farm questionnaire
- Community level questionnaire
- Large scale farm questionnaire

The small scale farm questionnaire was the main census instrument and includes questions related to crop and livestock production and practices; population demographics; access to services, resources and infrastructure; and issues on poverty, gender and subsistence versus profit making production units. The main topics covered were:

- Household demographics and activities of the household members
- Land access/ownership/tenure and use
- Crop and livestock production and productivity
- Access to inputs and farming implements
- Access and use of credit
- Access to infrastructure (roads, district and regional headquarters, markets, advisory services, schools, hospitals, veterinary clinics, etc...)

- Crop marketing, storage and agroprocessing
- Tree farming, agro-forestry and fish farming
- Access and use of communal resources (grazing, communal forest, water for humans and livestock, beekeeping etc.)
- Investment activities: Irrigation structures, water harvesting, erosion control, fencing, etc.
- Off farm income and non agriculture related activities
- Households living conditions (housing, sanitary facilities, etc.)
- Labour use, livelihood constraints and subsistence versus non subsistence activities
- Gender issues.

The community level questionnaire was designed to collect village level data such as access and use of common resources, community tree plantations and seasonal farm gate prices.

The large scale farm questionnaire was administered to large farms which were either privately or corporately managed. Some data from the large scale farm questionnaire are incorporated in this report, however an in depth analysis of large scale farms is presented in a separate report.

1.3 Census Methodology

The main focus at all stages of the census execution was on data quality and this is emphasised in this section. The main activities undertaken include:

- Census organisation
- Tabulation plan preparation
- Sample design
- Design of census questionnaires and other instruments.
- Field pretesting of the census instruments
- Training of trainers, supervisors and enumerators
- Information Education and Communication (IEC) campaign
- Data Collection
- Field supervision and consistency checks
- Data processing:
 - Scanning
 - ICR extraction of data
 - Structure formatting application
 - Batch validation application
 - Manual data entry application
 - Tabulation preparation using SPSS
- Table formatting and charts using Excel, map generation using ArcView and Freehand.
- Report preparation using Word and Excel.

1.3.1 Census Organisation

The Census was conducted by the National Bureau of Statistics (NBS) in collaboration with the sector ministries of agriculture, and the Office of the Chief Government Statistician in Zanzibar (OCGS). At the National level the Census was headed by the Director General of the National Bureau of Statistics with assistance from the Director of Economic Statistics. The Planning Group oversaw the operational aspects of the Census and this consisted of staff from the Department of Agriculture Statistics of NBS and three representatives of the Department of Policy and Planning of the

Ministry of Agriculture and Food Security (MAFS). At the regional level, implementation of census activities was overseen by the Regional Statistical Office of NBS and the Regional Agriculture Supervisor from the Ministry of Agriculture and Food Security. At the District level the Census activities were managed by two Supervisors from the Presidents Office, Regional Administration and Local Government (PORALG). The supervisors managed the enumerators who also came from PORALG.

The members of the Planning Group had a minimum qualification of a bachelor degree; the Regional Supervisors were Agriculture Economists, Statisticians or Statistical Officers. The District Supervisors and Enumerators had diploma level qualifications in Agriculture.

The Census and Surveys Technical Working Group (CSTWG) provided support in sourcing financing, approving budget allocations and Technical Assistance inputs as well as monitoring the progress of the Census. A Technical Committee for the census was established with members from key stakeholder organisations and its function was to approve the proposed instruments and procedures developed by the Planning Group. It also approved the tabulations and analytical reports prepared from the Census data.

1.3.2 Tabulation Plan Preparation

The tabulation plan was developed following three user group workshops and thus reflects the information needs of the end users. It took into consideration the tabulations from previous census and surveys to allow trend analysis and comparisons.

1.3.3 Sample Design

The Mainland sample consisted of 3,221 villages. These villages were drawn from the National Master Sample (NMS) developed by the National Bureau of Statistics (NBS) to serve as a national framework for the conduct of household based surveys in the country. The National Master Sample was developed from the 2002 Population and Housing Census. The total Mainland sample was 48,315 agricultural households. In Zanzibar a total of 317 EAs were selected and 4,755 agriculture households were covered. Nationwide, all regions and districts were sampled except three urban district (two from Mainland and one from Zanzibar).

In both Mainland and Zanzibar, a stratified two stage sample was used. The number of villages/Enumeration Areas (EAs) were selected for the first stage with a probability proportional to the number of villages in each district. In the second stage, 15 households were selected from a list of farming households in each Village/EA using systematic random sampling. Table 1.1 gives the sample size of households, villages and districts for Tanzania Mainland and Zanzibar.

Table 1.1 Census Sample Size (number)

Level	Mainland	Zanzibar	Total
Households	48,315	4,755	53,070
Villages/EAs	3,221	317	3,539
Districts	117	9	126
Regions	21	5	26

1.3.4 Questionnaire Design and Other Census Instruments

The questionnaires were designed following user meetings to ensure that the questions asked were in line with users data needs. Several features were incorporated into the design of the questionnaires to increase the accuracy of the data:

- Where feasible all variables were extensively coded to reduce post enumeration coding error.
- The definitions for each section were printed on the opposite page so that the enumerator could easily refer to the instructions whilst interviewing the farmer.

- The responses to all questions were placed in boxes printed on the questionnaire, with one box per character. This feature made it possible to use scanning and Intelligent Character Recognition (ICR) technologies for data entry.
- Skip patterns were used to reduce unnecessary and incorrect coding of sections which do not apply to the respondent.
- Each section was clearly numbered, which facilitated the use of skip patterns and provided a reference for data type coding for the programming of CSPro, SPSS and the dissemination applications.

Three other instruments were used:

- Village Listing Forms were used for listing households in the village and from this list a systematic sample of 15 agricultural households were selected.
- A Training Manual which was used by the trainers for the cascade/pyramid training of supervisors and enumerators
- Enumerator Instruction Manual which was used as reference material.

1.3.5 Field Pre-testing of the Census Instruments

The Questionnaire was pre-tested in five locations (Arusha, Dodoma, Tanga, Unguja and Pemba). This was done to test the wording, flow and relevance of the questions and to finalise crop lists, questionnaire coding and manuals. In addition to this, several data collection methodologies had to be finalised, namely, livestock numbers in pastoralist communities, cut flower production, mixed cropping, use of percentages in the questionnaire and finalising skip patterns and documenting consistency checks.

1.3.6 Training of Trainers, Supervisors and Enumerators

During training, cascade/pyramid training techniques were employed to maintain statistical standards. The top level of training was provided to 66 national and regional supervisors (3 supervisors per region plus Zanzibar). The trainers were members of the Planning Group from the National Bureau of Statistics and the sector ministries of agriculture. In each region, three training sessions were conducted for the district supervisors and enumerators. In addition to training them in field level census methodology and definitions, emphasis was placed on training the enumerators and supervisors in consistency checking. Tests were given to the supervisors and enumerators and the best 50 percent of the trainees were selected to administer the smallholder and community level questionnaires. This increased the number of interviews per enumerator but it also released finance to increase the number of supervisors and hence the supervisor enumerator ratio. The household listing exercise was carried out by all trained enumerators.

1.3.7 Information, Education and Communication (IEC) Campaign

Radio, television, newspapers, leaflets, t-shirts and caps were used to publicise the Agriculture Sample Census. This helped in sensitising the public for the field level activities. The t-shirts and caps were given to the field staff and the village chairpersons. The village chairpersons helped to locate the selected households.

1.3.8 Data Collection

Data collection activities for the 2002/03 Agriculture Sample Census took three months from January to March 2004. The data collection methods used during the census were by interview only. No physical measurements, e.g., crop cutting and field area measurement, were taken. Field work was monitored by a hierarchical system of supervisors at the top of which was the Mobile Response Team followed by the Regional Supervisors and District Supervisors. The Mobile Response Team consisted of three Principal Supervisors who provided overall direction to the field operations and responded to queries raised outside the scope of the training exercise. The mobile response team consisted of the Manager of

Agriculture Statistics Department, Long-term Consultant and the Desk Officer for the Census. Decisions made on definitions and procedures were then communicated back to all enumerators via the Regional and District Supervisors.

On the Mainland district supervision and enumeration were done by staff from the President's Office, Regional Administration and Local Government (PORALG). Regional and national supervision was provided by senior staff of the National Bureau of Statistics and the sector ministries of agriculture. In Zanzibar the enumeration was done by staff from the Ministry of Agriculture, Natural Resources, Environment and Cooperatives. Supervision was provided by senior officers of the same ministry and the Office of the Chief Government Statistician.

During the household listing exercise, 3,222 extension staff were used on the Mainland and 317 in Zanzibar. For the enumeration of the small holder questionnaire, 1,611 enumerators on Mainland and 158 in Zanzibar were used. An additional five percent of the total number of enumerators was held in reserve in case of drop outs during the enumeration exercise.

1.3.9 Field Supervision and Consistency Checks

Enumerators were trained to probe the respondents until they were satisfied with the responses given before they recorded them in the questionnaire. The first check of the questionnaires was done by enumerators in the field during enumeration. The second check was done by the district supervisors followed by Regional and National Supervisors. Supervisory visits at all levels of supervision focused on consistency checking of the questionnaires. Inconsistencies encountered were corrected, and where necessary a return visit to the respondent was made by the enumerator to obtain the correct information. Further quality control checks were made through a major post enumeration checking exercise where all questionnaires were checked for consistencies by supervisors in the district offices.

1.3.10 Data Processing

Data processing consisted of the following processes:

- Data entry
- Data structure formatting
- Batch validation
- Tabulation

Data Entry

Scanning and ICR data capture technology for the small holder questionnaire were used on the Mainland. This not only increased the speed of data entry, it also increased the accuracy due to the reduction of keystroke errors. Interactive validation routines were incorporated into the ICR software to track errors during the verification process. The scanning operation was so successful that it is highly recommended for adoption in future censuses/surveys. In Zanzibar all data was entered manually using CPro.

Prior to scanning, all questionnaires underwent a manual cleaning exercise. This involved checking that the questionnaire had a full set of pages, correct identification and good handwriting. A score was given to each questionnaire based on the legibility and the completeness of enumeration. This score will be used to assess the quality of enumeration and supervision in order to select the best field staff for future censuses/surveys.

CSPro was used for data entry of all Large Scale Farm and community based questionnaires due to the relatively small number of questionnaires. It was also used to enter data from the 2,880 small holder questionnaires that were rejected by the ICR extraction application.

Data Structure Formatting

A program was developed in visual basic to automatically alter the structure of the output from the scanning/extraction process in order to harmonise it with the manually entered data. The program automatically checked and changed the number of digits for each variable, the record type code, the number of questionnaires in the village, the consistency of the Village ID Code and saved the data of one village in a file named after the village code.

Batch Validation

A batch validation program was developed in order to identify inconsistencies within a questionnaire. This is in addition to the interactive validation during the ICR extraction process. The procedures varied from simple range checking within each variable to the more complex checking between variables. It took six months to screen, edit and validate the data from the smallholder questionnaires. After the long process of data cleaning, tabulations were prepared based on a pre-designed tabulation plan.

Tabulations

Statistical Package for Social Sciences (SPSS) was used to produce the Census tabulations and Microsoft Excel was used to organize the tables and compute additional indicators. Excel was also used to produce charts while ArcView and Freehand were used for the maps.

Analysis and Report Preparation

The analysis in this report focuses on regional comparisons, time series and national production estimates. Microsoft Excel was used to produce charts, ArcView and Freehand were used for maps, whereas Microsoft Word was used to compile the report.

Data Quality

A great deal of emphasis was placed on data quality throughout the whole exercise from planning, questionnaire design, training, supervision, data entry, validation and cleaning/editing. As a result of this, it is believed that the census is highly accurate and representative of what was experienced at field level during the Census year. With very few exceptions, the variables in the questionnaire are within the norms for Tanzania and they follow expected time series trends when compared to historical data. Standard Errors and Coefficients of Variation for the main variables are presented in the Technical Report (Volume I).

1.4 Funding Arrangements

The Agricultural Sample Census was supported mainly by the European Union (EU) who financed most of the operational activities. Other funds for operational activities came from the Government of Tanzania, Government of Japan, United Nations Development Programme (UNDP) and other partners in the Pool fund of the Vice President's Office (VPO). In addition to this, technical assistance funds were provided by the European Union (EU), Department for International Development (DFID) and Japan International Cooperation Agency (JICA). The technical assistance was managed by Ultek Laurence Gould Consultants (ULG), Scotts Agriculture Consultancy Ltd. (SAC) and the Food and Agriculture Organisation (FAO).

2. CROP RESULTS

This section of the report analyses the census results in relation to type of crop growing households, land use, crop production and crop husbandry.

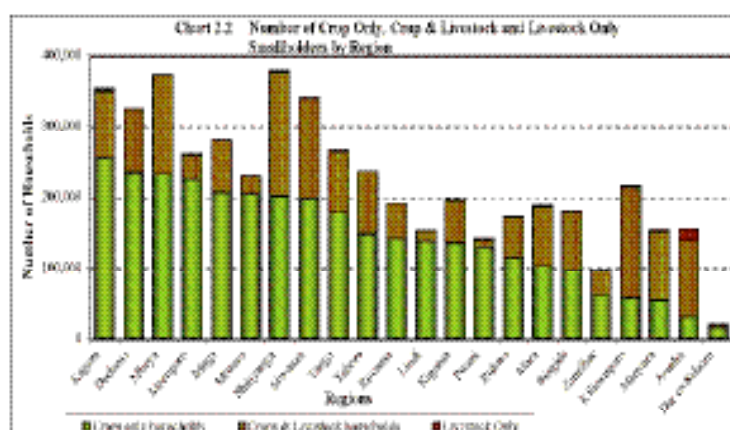
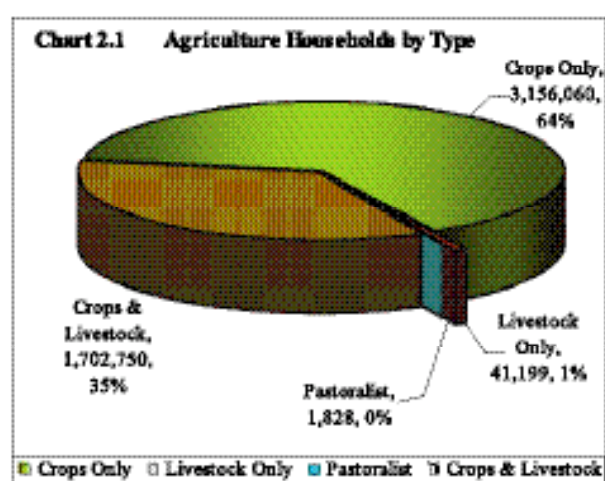
The total number of agriculture households (those involved in crops, livestock, vegetable production and fish farming) in Tanzania was 4,901,837 (4,805,315 on the Mainland and 96,522 in Zanzibar). The regions with the highest number of agriculture households in Tanzania were found in the Lake Zone (Shinyanga, Mwanza and Kagera), the southern highland regions of Mbeya and Dodoma (Map 2.1). However, in terms of farming intensity (the number of agriculture households per square kilometre of land) Zanzibar, with 39/km², has the highest in the country. On the Mainland, the highest number of agriculture households per square kilometre is found in Mwanza (17/km²) and Kilimanjaro (16/km²) regions (Map 2.2). The trends for crop growing households are exactly the same due to the very small number of households that do not grow crops.

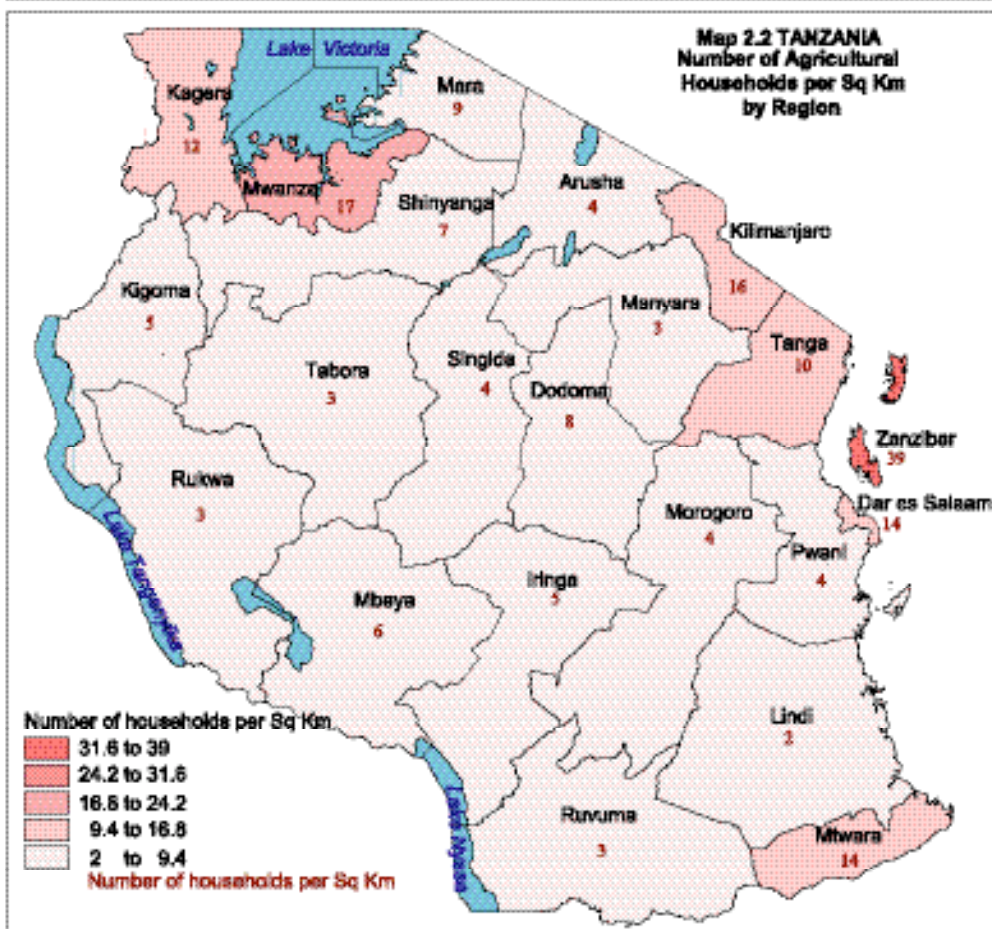
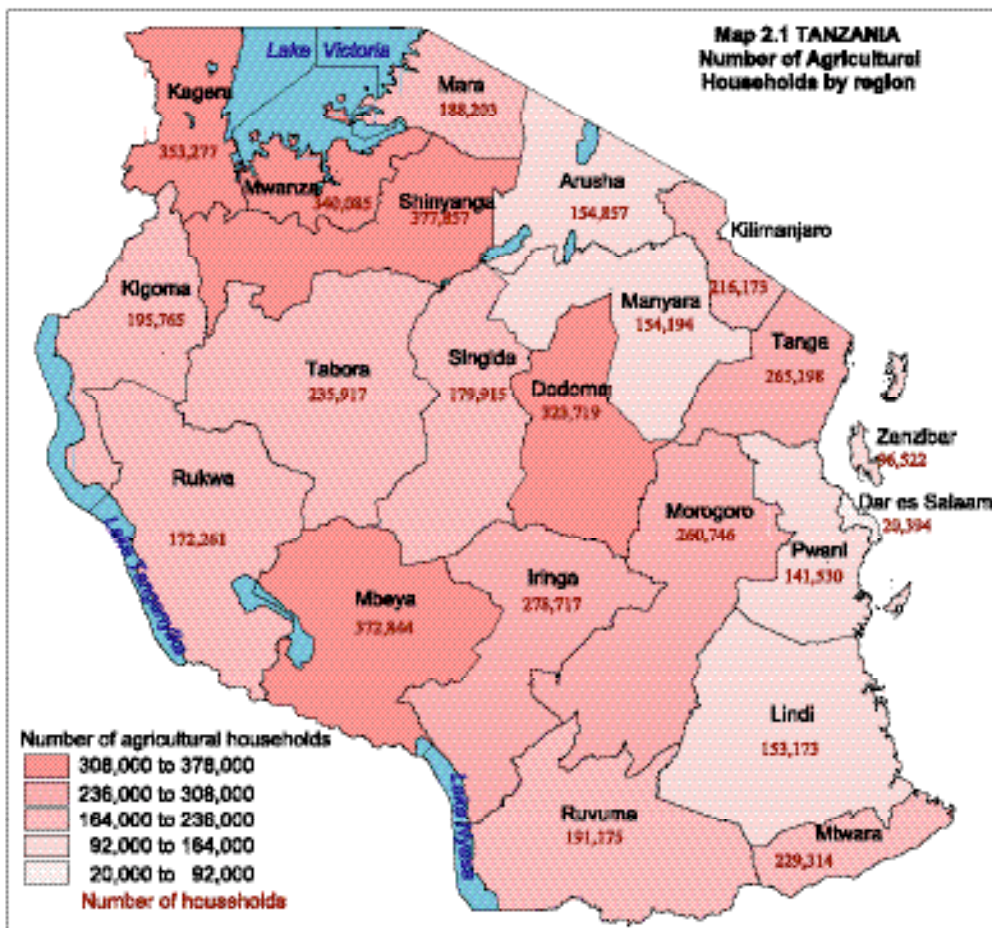
2.1 Type of Agriculture Household

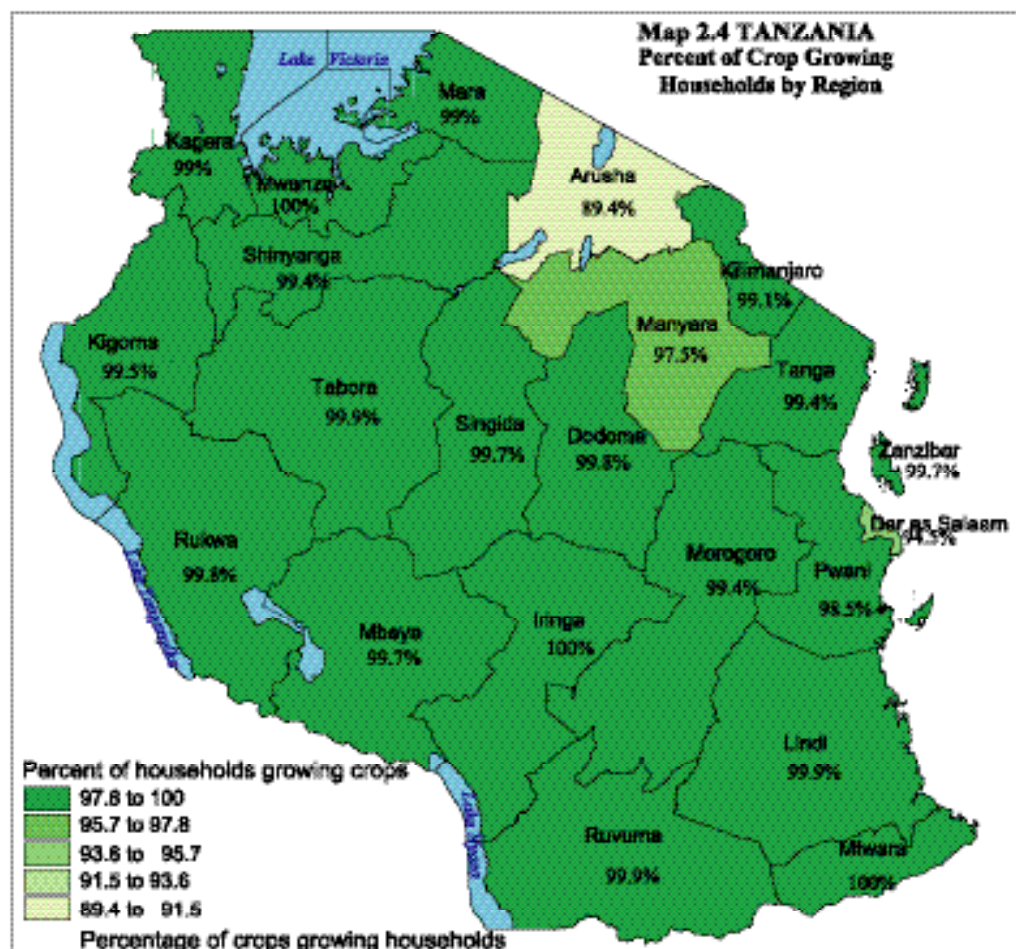
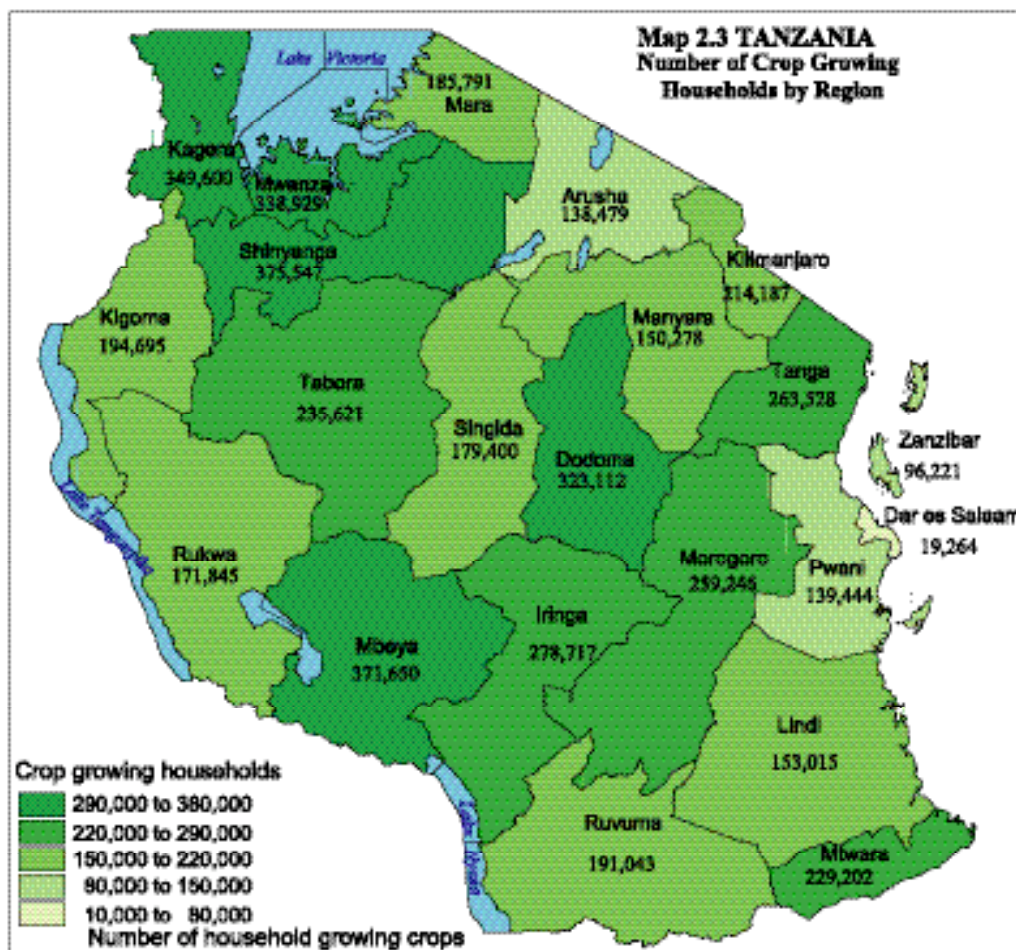
At national level, crop farming is more important than livestock keeping with 99 percent (4,858,810) of smallholder households involved in crop production against 36 percent (1,745,777) keeping livestock. Of the crop growing households 4,762,589 (98%) were on the Mainland and 96,221 (2%) in Zanzibar (Chart 2.1) and this is made up of 3,156,060 crops only households and 1,702,740 households with both crops and livestock.

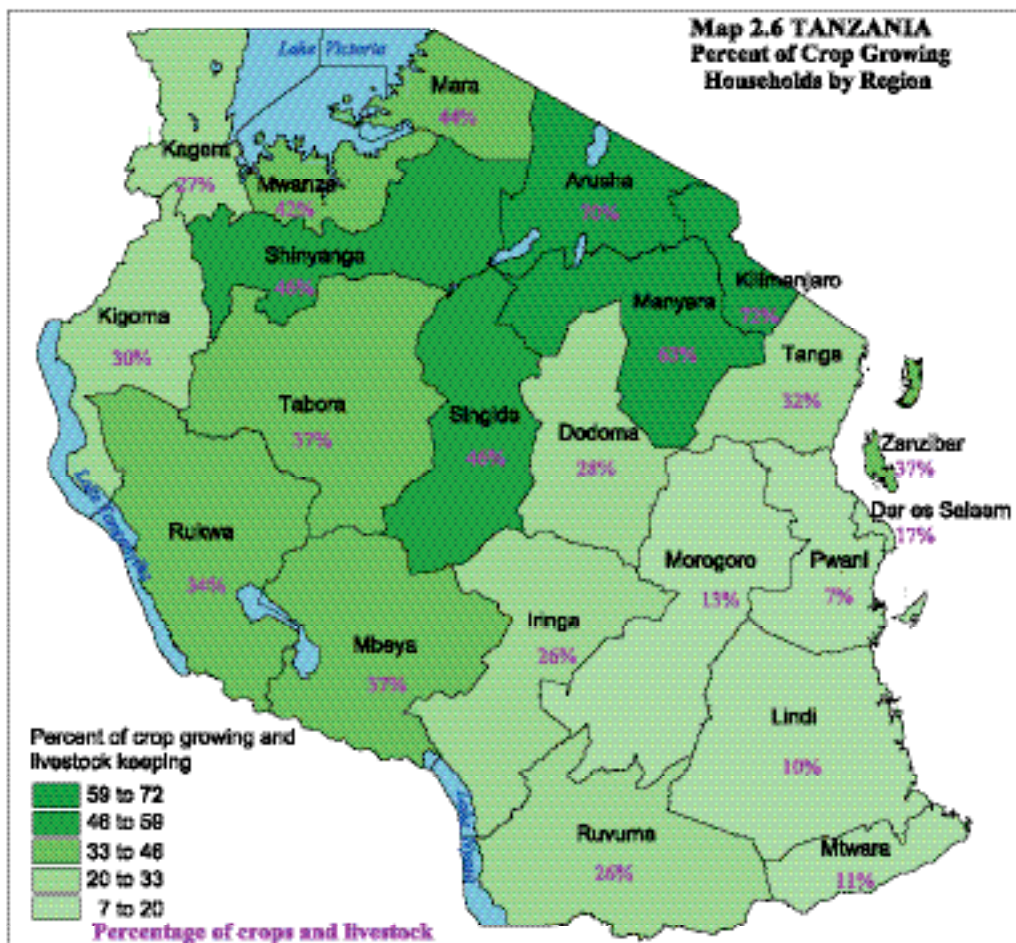
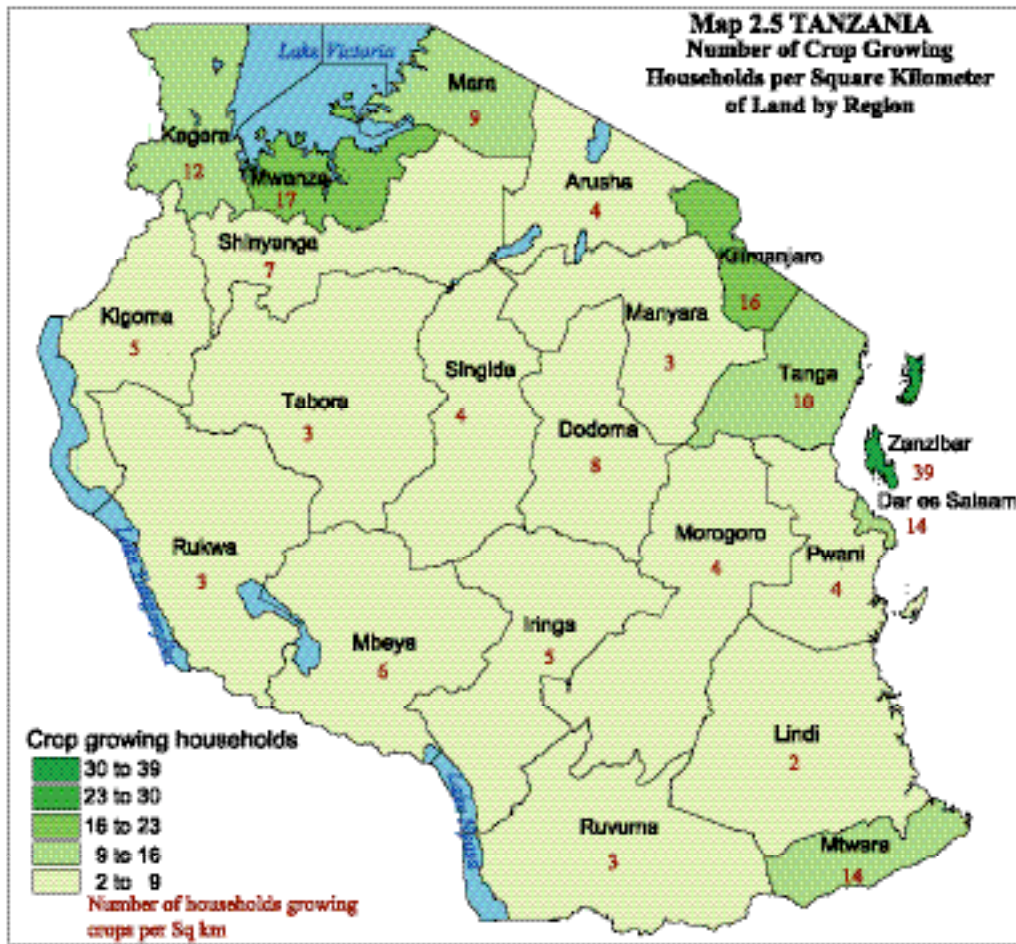
Shinyanga has the highest number of crop growing households in the country. This is followed by Mbeya, Kagera, Mwanza and Dodoma. Dar es Salaam and Zanzibar have the lowest number of households involved in crop production (Chart 2.2, Map 2.3 and Map 2.4). Zanzibar has the highest intensity of crop growing households with 39 crop growing households per square kilometre of land (Map 2.5)

Kilimanjaro, Arusha and Manyara are the only regions with a higher number of households with crops and livestock than households growing crops only. Smallholder households in Mtwara, Morogoro, Iringa, Lindi and Pwani keep very few livestock and are practically totally dependant on crop growing in regard to their on farm activities (Chart 2.2, Map 2.6). Pastoralists and livestock only households (43,027 households) are mainly found in Arusha (16,379 households) (Chart 2.2 and Map 2.7).

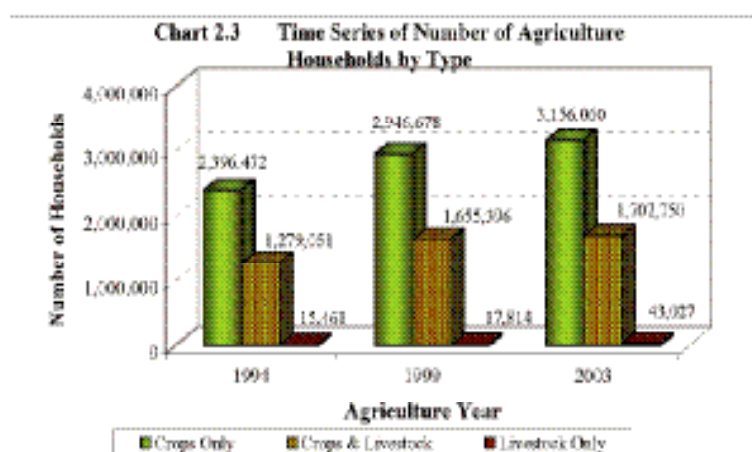








Time series data show an increase in all types of agriculture households over the period 1994 to 2003 (32.2% or 3.4% per year). For crop growing households the increase was greater between 1993/94 and 1998/99 (3.2% increase per year). Crop and livestock small holders follow the same trend as that of crops only smallholders (Chart 2.3). The increase in livestock only households was large over the period 1999 to 2003, however the numbers are very small and caution must be taken when using them.



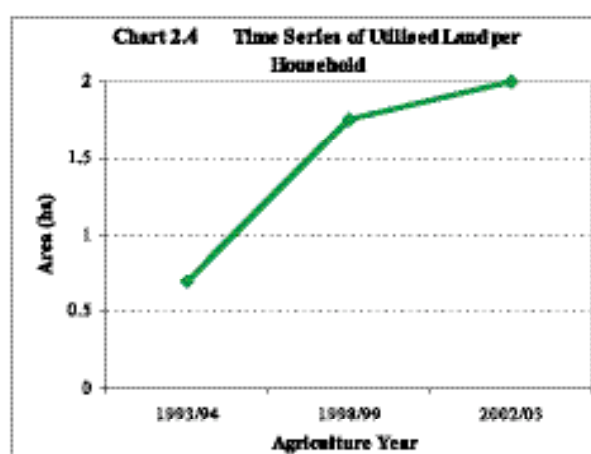
2.2 Land Use

Land area planted and planted area are two different types of area measurements. Land area planted refers to the physical area of land and is the same regardless of the number of crops planted on the same land in one year. Land area planted is used in the Land Use Section as it refers to physical land area whereas planted area is used in the Annual Crop Production Section as it refers to the area of crops planted in a year whereby the area is summed if there were more than one crop on the same land in a year.

2.2.1 Area of Land Utilised

The total area of land allotted to smallholders is 11,997,071 ha (11,885,132 ha (99%) on the Mainland and 111,939 ha (1%) in Zanzibar). The total utilised land area is 9,521,592 which is 79 percent of the total allocated land area. This is equivalent to 2.4 hectares per household. However, the utilisable area per household (which includes area utilised plus area usable but not used) is 2.3 ha. The national average land area utilised for agriculture per household is only 2.0 ha (includes area under fallow, if fallow is excluded the land area per household is only 1.9 percent). This implies that 0.3 hectares of usable land per household of usable land was not cultivated during the 2002/03 agriculture year.

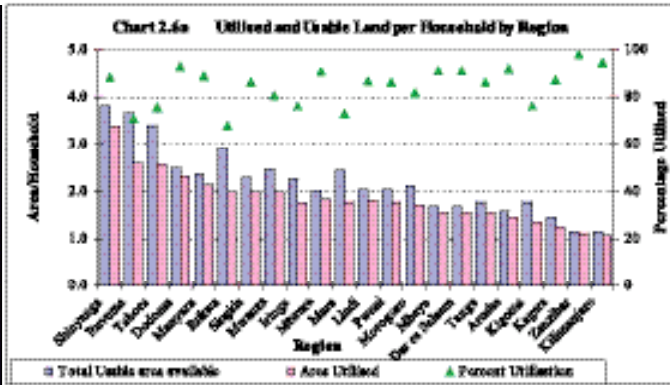
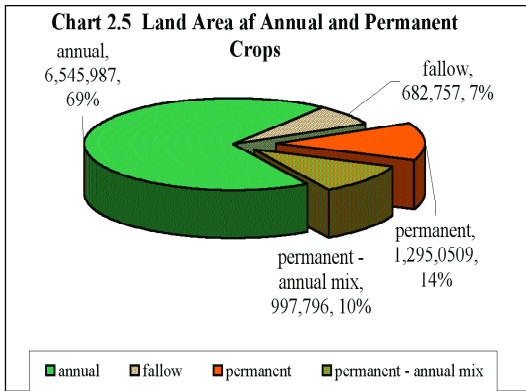
The total area allocated to smallholders has not changed significantly over the last 10 years and, if any, there has been a reduction in the allocated area. This implies that smallholders



are not encroaching into land which has not been designated for agriculture purposes and the major change is in the area of allocated land that is utilised. The area of land utilised per household has increased by 186 percent since 1993/94. Most of the increase was between 1994 and 1999 and the rate of increase diminished sharply over the period 1999 to 2003 (Chart 2.4).

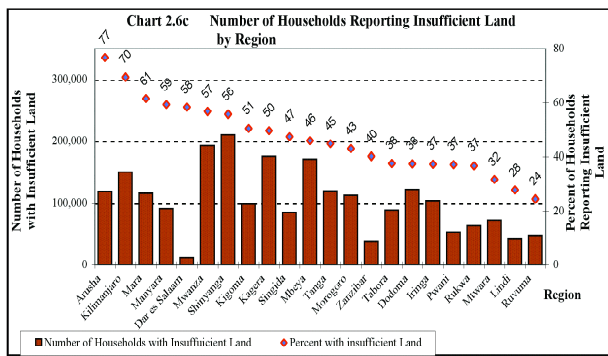
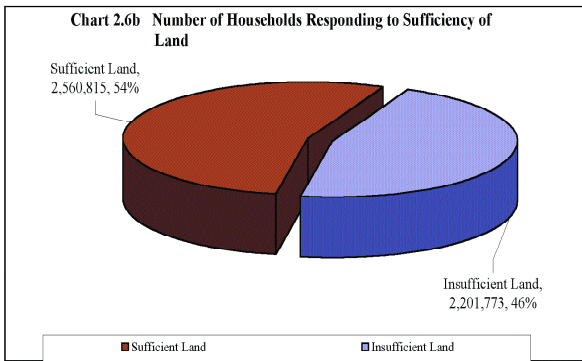
Large differences in land area utilised per household exist between regions with Shinyanga utilising more than three hectares per household and Ruvuma, Tabora, Dodoma and Manyara utilising between 2.0 and 3.0 ha per household. In other regions the percentage utilisation is lower as in Rukwa, Ruvuma, Tabora, Mara and Kigoma. The smallest land area utilised per household is found in Zanzibar, Kilimanjaro and Kagera where the utilisation is only between 1.0 and 1.2 ha per household. In Zanzibar, Mtwara, Dodoma, Arusha, Mbeya and Dar es Salaam regions the percentage utilisation is

approaching maximum (Map 2.8). Total usable area refers to the land that the household has access to either by official title or customary law (Chart 2.5).



2.2.2 Land Sufficiency

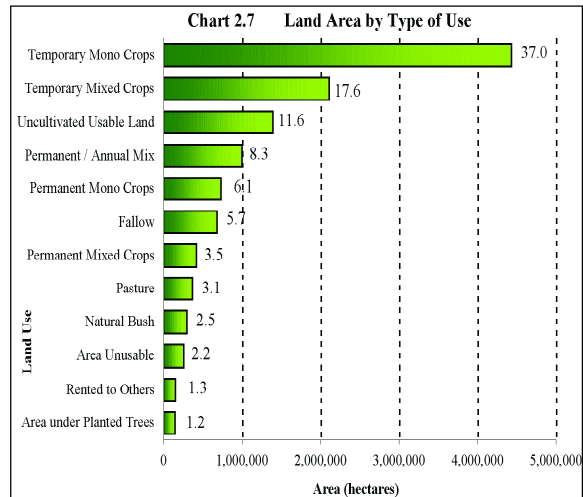
Although Tanzania, with its relatively low population coupled with its large land resources, it has problems with land access in many areas, with 2,201,773 households (46% of total agriculture households) reported having insufficient land (Chart 2.5b).



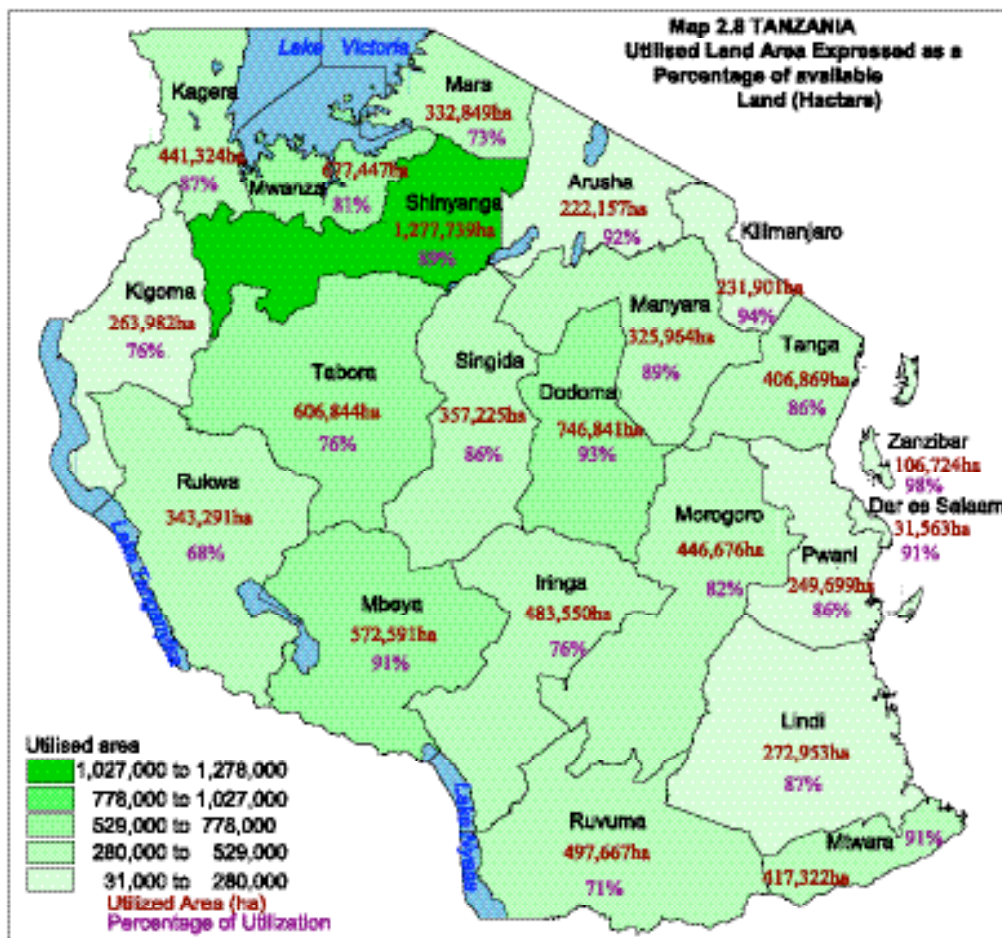
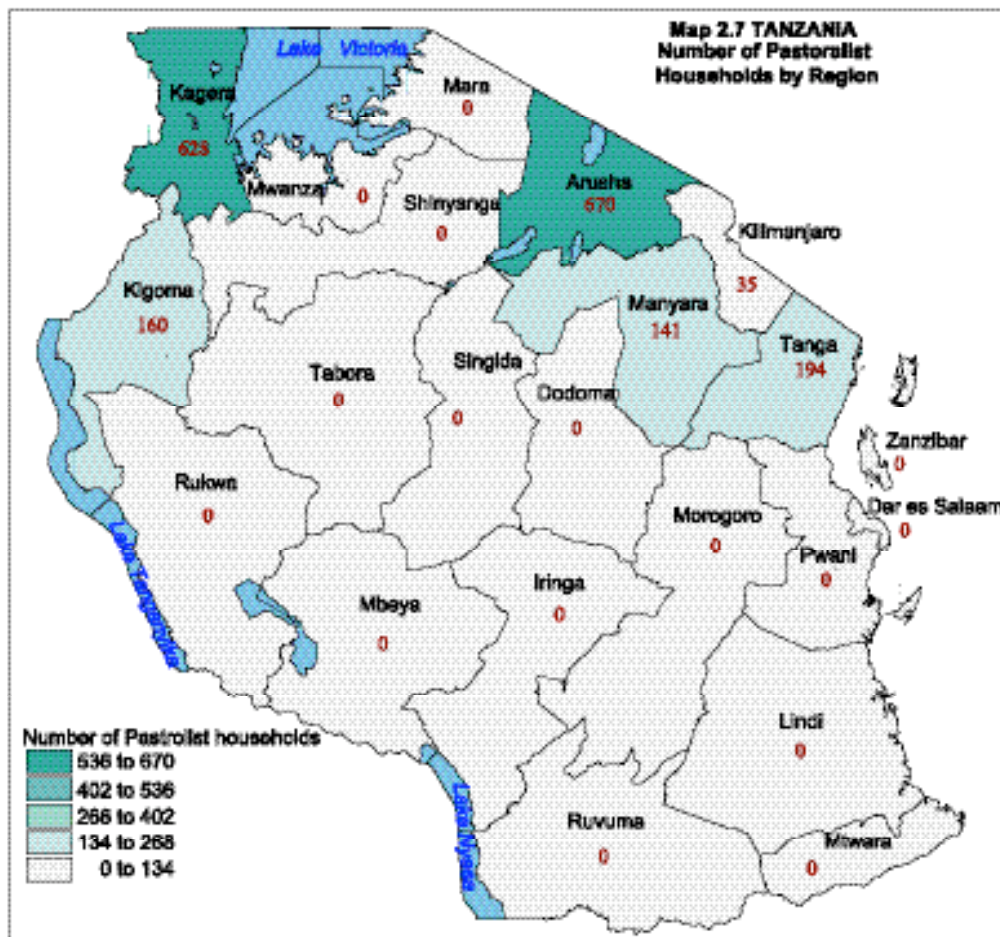
There are large differences in land pressure between regions with over 70 percent of the households in Arusha and Kilimanjaro reporting insufficiency of land, whilst in Ruvuma, Lindi and Mtwara it is under 35 percent.

2.2.3 Type of Land Use

Of the total land area with crops (9,521,592ha), the area with annual crops only (including fallow) is 7,228,745 ha (76% of the total land area with crops) whilst the land area with permanent crops only (including planted trees) is 1,295,050 ha or 14 percent of the total area with crops. Permanent-annual mixed stands occupy 997,797 ha (10% of the total land area under crops) (Chart 2.6).

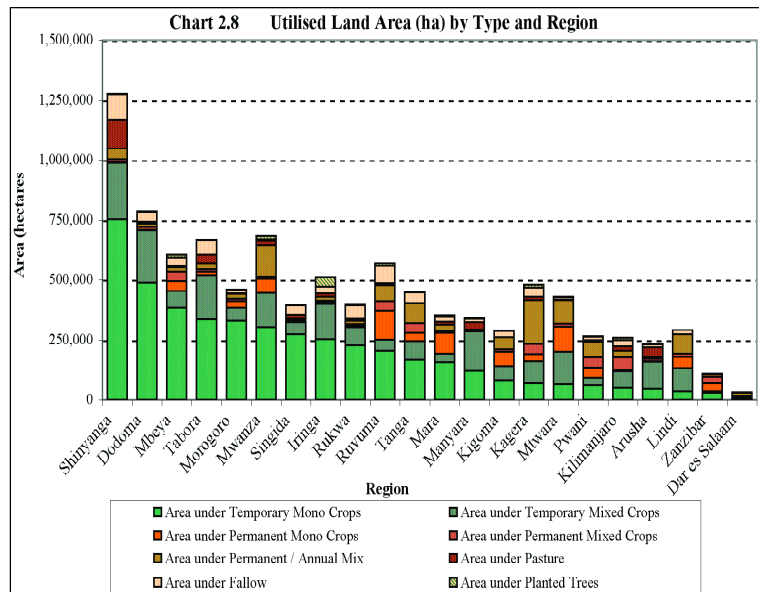


The area of land under temporary mono-crops is the most common type of agriculture land use in Tanzania constituting 4,436,177 ha (37% of the land allocated to small holders in Tanzania) and cultivated by 3,293,663 households. This is followed by temporary mixed crops (17.6%). Planted trees, land rented to others and natural bush are the least common



types of land use (less than 2.5%). Ninety four percent of the total land available to smallholders is utilised. Only 11.6 percent of usable land available to smallholders was not used (Chart 2.7). About 5.7 percent of the total usable land was fallow. The area under planted trees is small at 1.2 percent.

Shinyanga has the largest utilised land area under crops in Tanzania with an area of about 1,250,000 ha (Chart 2.8 and Map 2.9). This does not necessarily mean that it is the highest crop producing region in the country. There is virtually no permanent crop production in the region and mono-cropping of annual crops is the dominant farming system (Chart 2.8). Kagera, Mtwara, Ruvuma, Mwanza, Tanga Lindi and Kigoma have the highest area of permanent crops (Chart 2.8 and Map 2.10).



Relatively small land areas of planted trees are found in Iringa, Mwanza, Ruvuma and Kilimanjaro regions. Small areas of pasture exist in Shinyanga, Arusha, Singida and Tabora (Map 2.11 and 2.12).

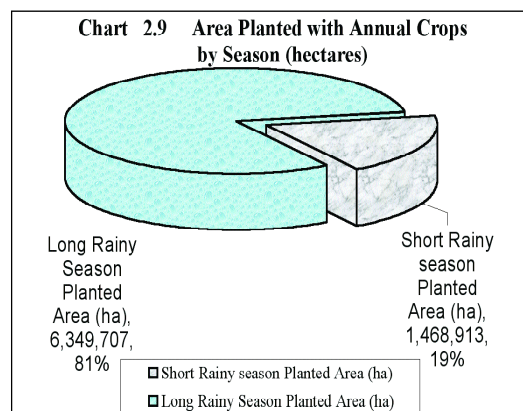
Small areas of pasture exist in Shinyanga, Arusha, Singida and Tabora (Map 2.11 and 2.12).

2.3 Annual Crop Production

In some areas of Tanzania there are two rainy seasons; the long rainy season (Masika) and the short rainy season (Vuli). The long rainy season normally covers the whole country. The short rainy season is normally found in Dar es Salaam, Pwani, Morogoro, Tanga, Kilimanjaro, Kagera, Mwanza, Mara, Kigoma, Zanzibar and parts of Mbeya, Arusha and Shinyanga regions.

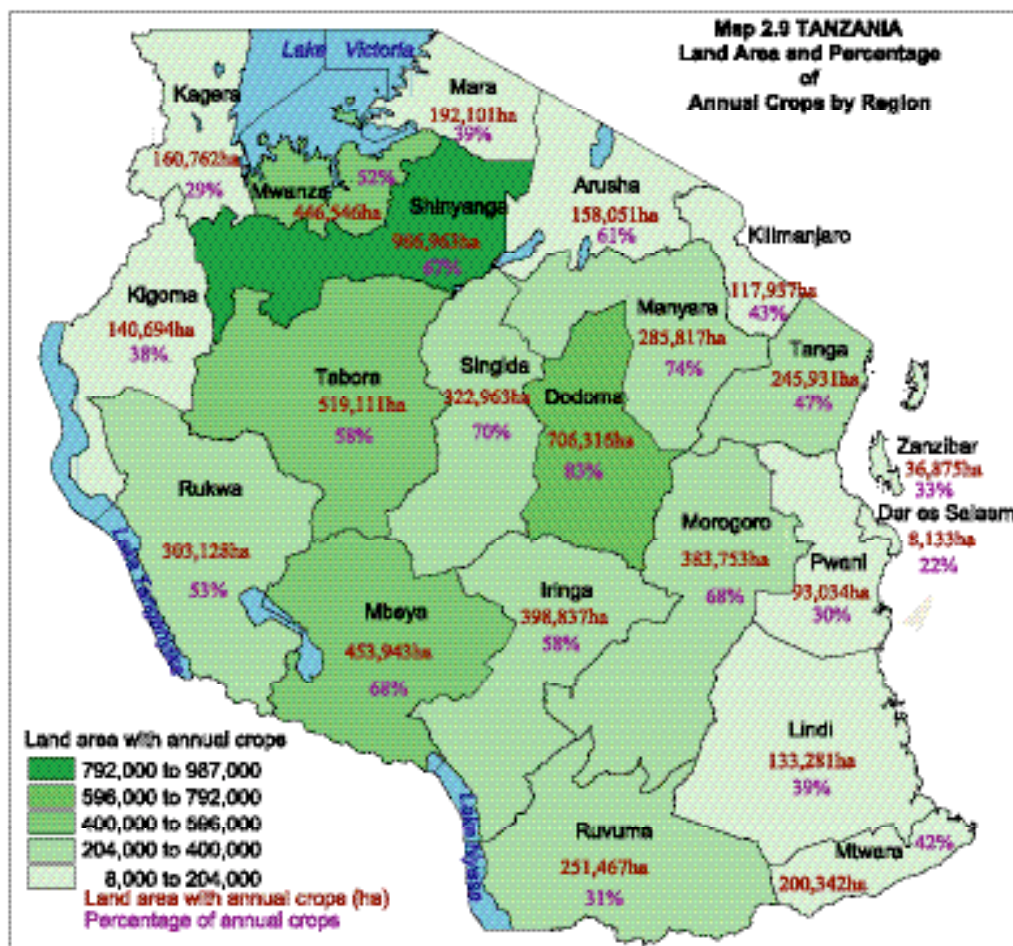
2.3.1 Area Planted

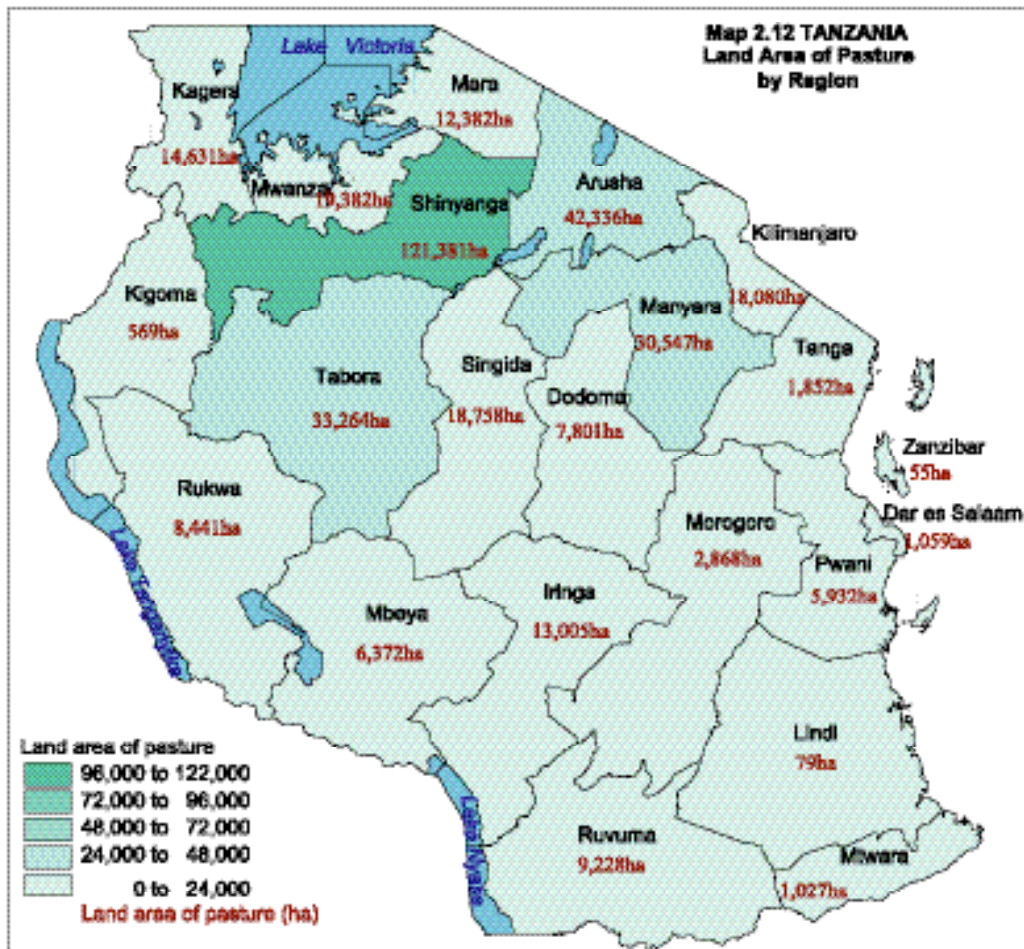
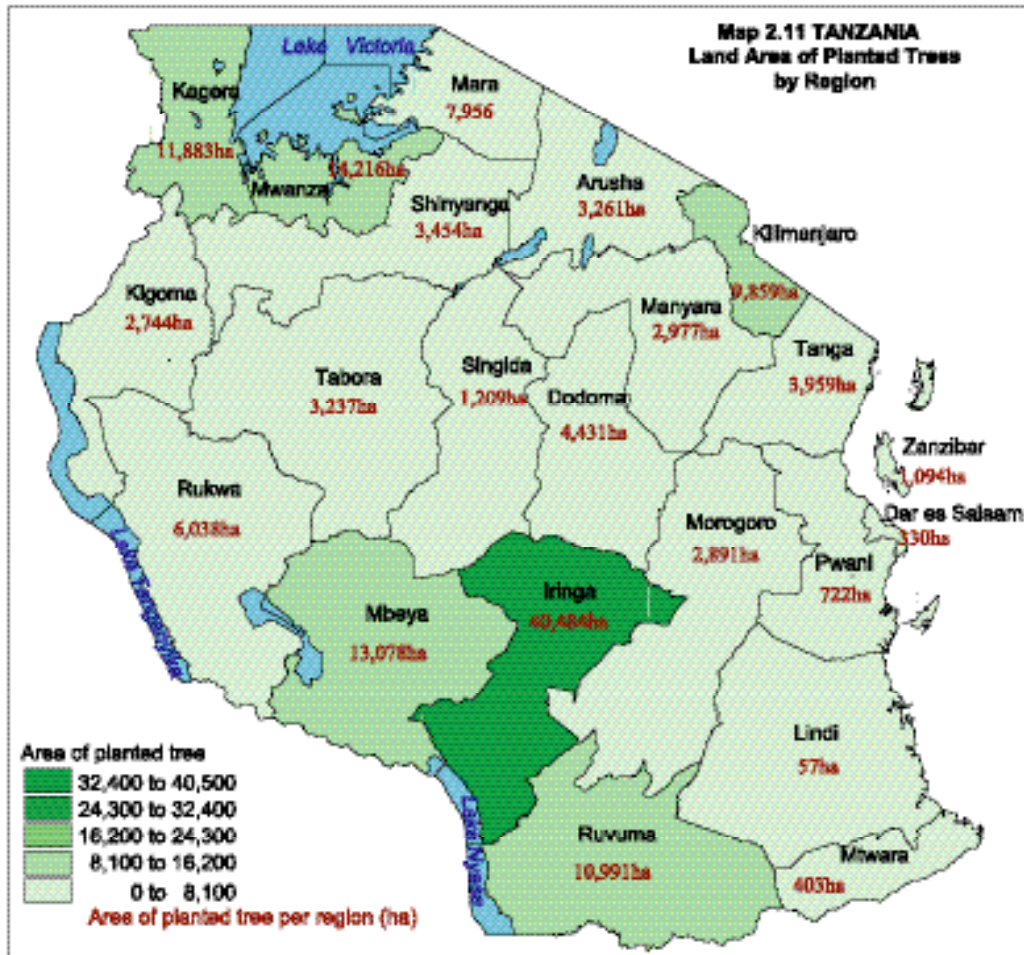
The total area planted with annual crops during the 2002/03 was 7,818,620 ha (7,740,344 ha on the Mainland and 78,276 ha in Zanzibar) of which 6,349,707 ha were planted in the long rainy season (81% of the total area planted) and 1,468,913 ha in the short rainy season (Chart 2.9). The overall average planted area of annuals per crop growing households is 1.61 ha. Mwanza has the highest planted area in the country as a result of it having good long and short rainy seasons (Chart 2.11 and Maps 2.13 and 2.14).

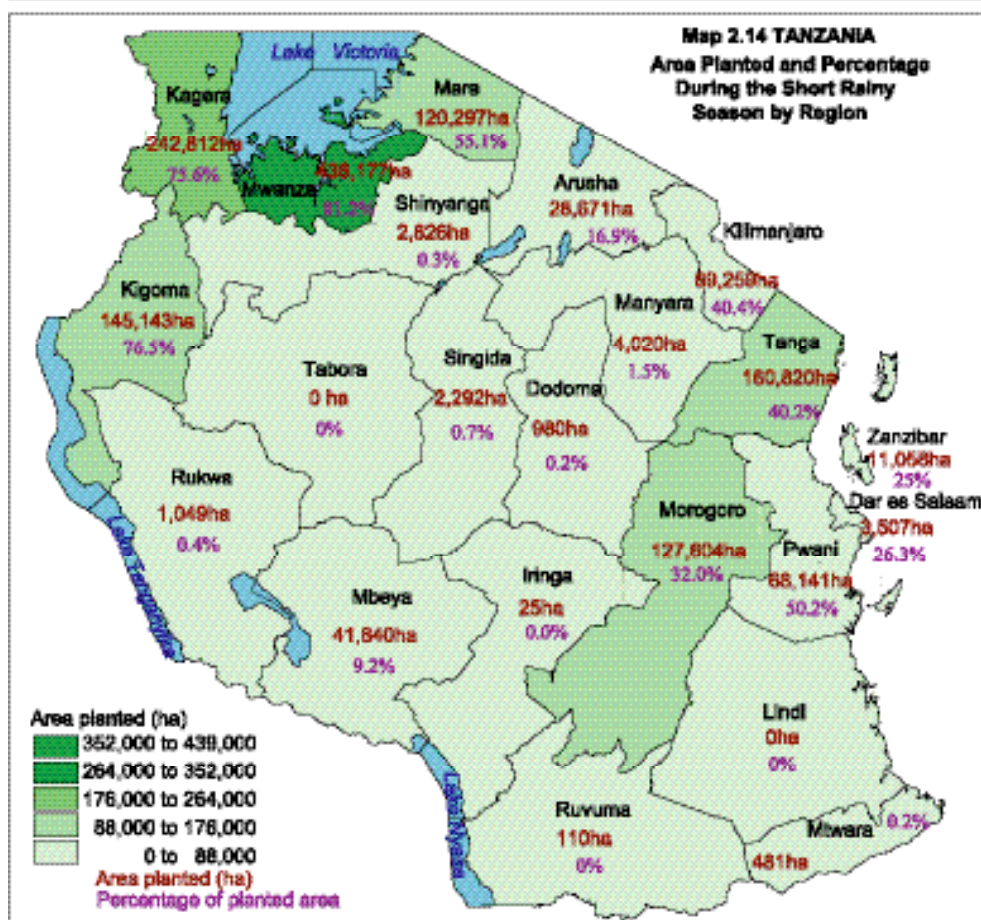
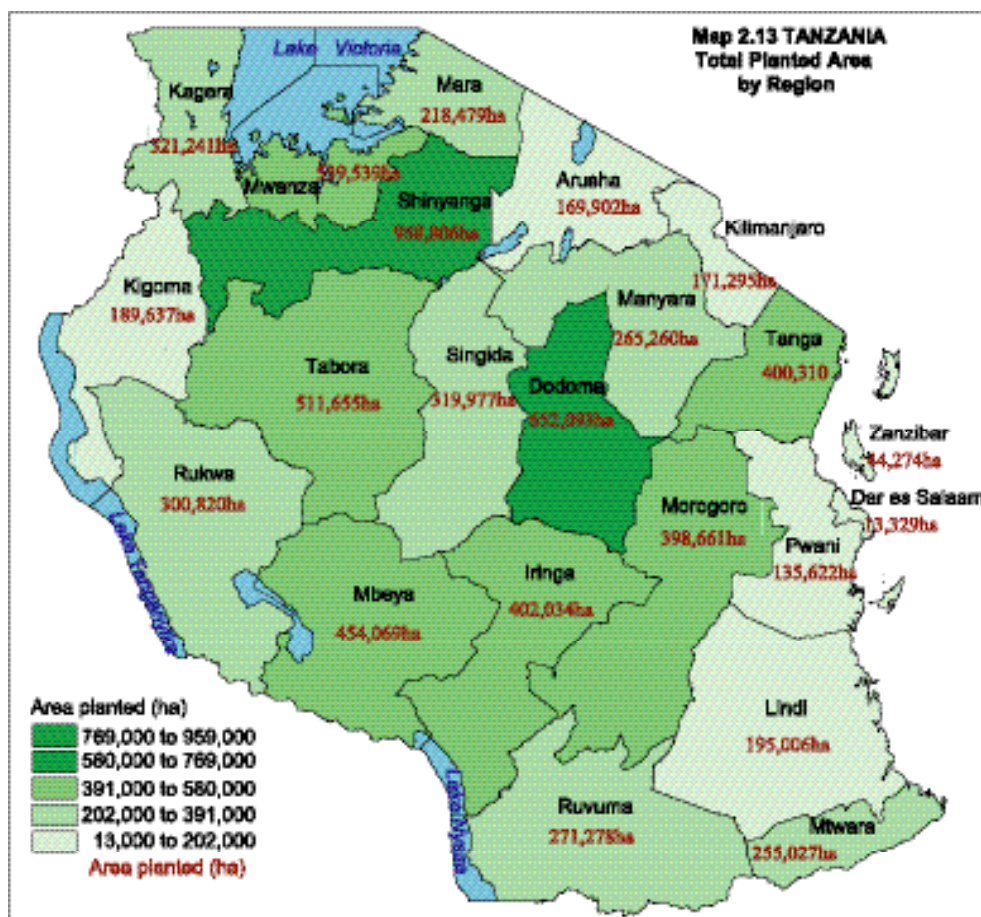


A comparison of seasonal annual crop planted area with land area of annual crops in the previous section indicates that smallholders mostly plant crops on the same land during both seasons as there is only a difference of 196,280 ha (6,545,987 ha – 6,349,707 ha)

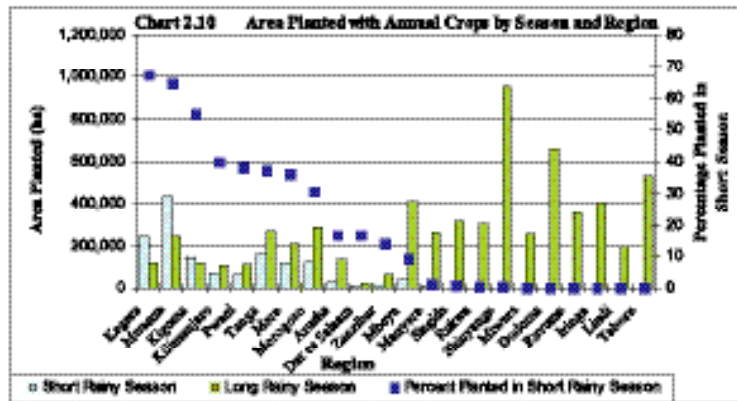
between the area planted in the long rainy season and the physical land area planted with annual crops during the year.



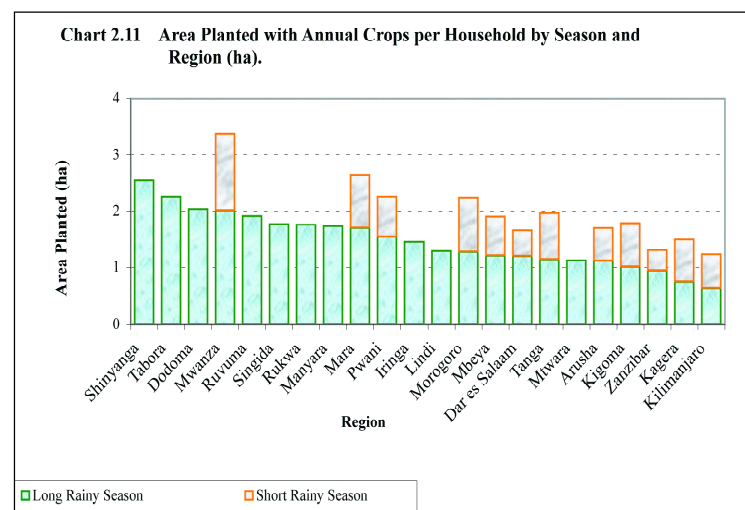




The area planted during the short rainy season was higher than the area in the long rainy season in three regions. These regions are located in the North West of Tanzania (Mwanza, Kagera and Kigoma). Shinyanga, Dodoma, Tabora, Mbeya and Iringa had the largest planted areas during 2002/03 long rainy season. The smallest areas planted during the long rainy season were in Dar es Salaam, Zanzibar, Kigoma, Pwani, Kagera and Mara. In the regions with a short rainy season the largest area planted was in Mwanza (438,177 ha), followed by Kagera (242,812 ha), Tanga (160,820 ha), Kigoma (145,143 ha) and Morogoro (127,604 ha) (Chart 2.10, Map 2.14)



The average area planted per household during the long rainy season was 1.57 ha, however there were large regional differences. Shinyanga had the largest area planted per household (2.6 ha) followed by Tabora (2.3 ha), Dodoma (2.0 ha), Mwanza (2.0 ha), Ruvuma (1.9 ha), Singida (1.8 ha), and Rukwa (1.8 ha). The smallest area planted per household during the long rainy season was found in Kilimanjaro, Kagera, Dar es Salaam, Zanzibar, Kigoma, Arusha, Mtwara and Mbeya (Chart 2.11 and Map 2.13). For



the regions that have short rainy season, the average area planted per household was 1.1 ha. The region with the largest area planted per household during the short rainy season was Mwanza (1.4 ha) followed by Morogoro (1.0 ha) and Mara (0.9 ha)¹ (Chart 2.11 and Map 2.14).

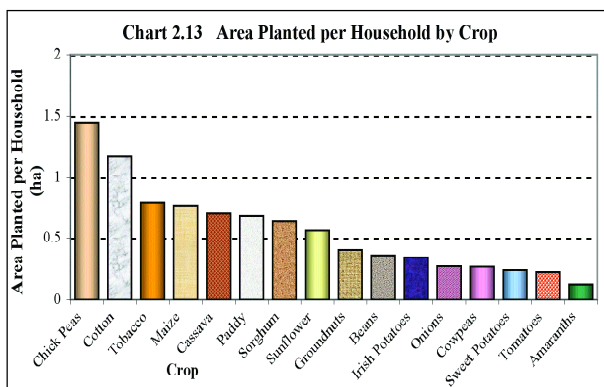
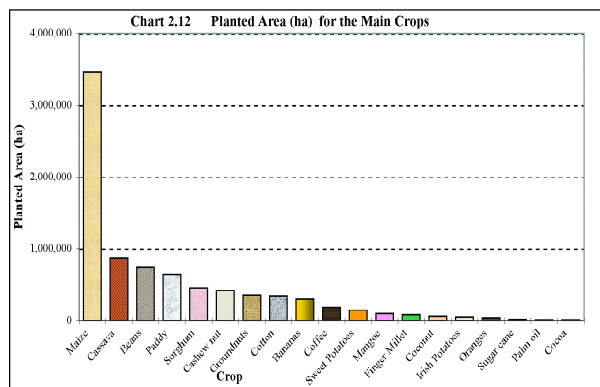
2.3.2 Analysis of the Most Important Crops

Results on crop production are presented in three different sections. The first section compares the importance of each crop regardless of whether they are annual or permanent. The second and third sections contain more detailed analyses of annual and permanent crops respectively.

Crop Importance

Maize is the dominant annual crop grown in Tanzania with a planted area 4.25 times greater than casseava, which has the second highest planted area. This is closely followed by beans and paddy, then sorghum, cashew nuts, groundnuts, cotton, bananas, coffee, sweet potatoes and mangoes (Chart 2.12).

¹ Only the regions with long rainy seasons are included. In the regions with no short rainy season small amounts of crops are grown but mostly under irrigation and thus seasonal comparisons cannot be made.

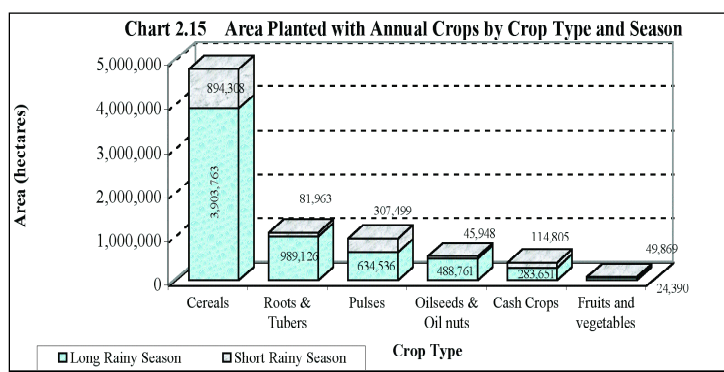
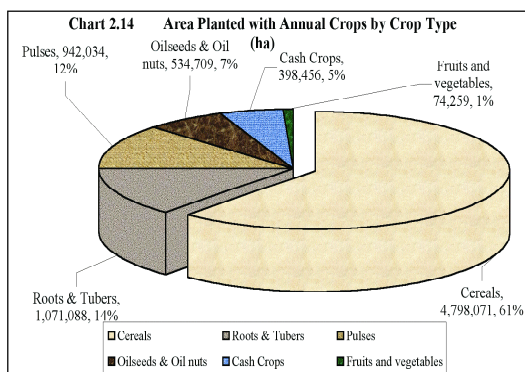


Crop Area Planted per Household

Chart 2.13 shows the area planted per household growing selected crops. Crops that are mainly grown for cash have a larger planted area per household than other crops, e.g. chick peas, cotton and tobacco. Cassava has the second highest planted area per household growing that crop than other staple crops whereas vegetables have the lowest planted area per household.

2.3.3 Crop Types

Cereals are the main crops grown in Tanzania. The area planted with cereals was 4,798,071 ha (61% of the total planted area), followed by roots and tubers with 1,071,089 ha (14%), Pulses 942,035 ha (12%), oil seeds 534,710 (7%), and cash crop 398,456 ha (5.1%). Fruit are normally permanent crops and are not totally reflected in Chart 2.13. Vegetables are underestimated because of difficulties in establishing the area and production on small household plots.

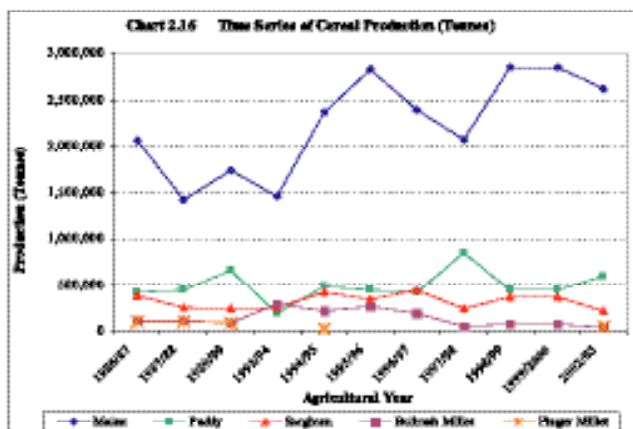


There is little difference in the proportions of the crop types grown between seasons. Short rainy season production was very small compared to that of the long rainy season and it is therefore inappropriate to make detailed comparisons between the two seasons. Cereals, roots and tubers and pulses are the dominant crops grown in both season. Other crop types are of minor importance in comparison (Chart 2.14).

2.3.4 Cereal Crop Production

The total production of cereals was 3,557,893 tonnes (3,543,955 tonnes on the Mainland and 13,938 in

Tanzania Agriculture Sample Census



Zanzibar). Maize production is higher than any other cereal in Tanzania with a total production of 2,617,115 tonnes (2,613,970 tonnes on the Mainland and 3,145 in Zanzibar) and it represents 74 percent of the total cereal production. This is followed by paddy with 604,978 tonnes (17%), sorghum (216,435t, 6%), finger millet (55,314t, 1.6%), bulrush millet with (39,364t, 1.1%), wheat with 23,521t, 0.7%) and barley with (1,165t, less than 1%) (Chart 2.16).

The area planted with maize is much larger than other crops, 44 percent of the total area planted and 72 percent of the area planted with cereals. The second most important cereal is paddy (13%), followed by sorghum (9%), bulrush millet (2%), finger millet (2%), wheat and barley (less than 1%). For all cereal crops with the exception of paddy (96%) and bulrush millet (91%) almost 100 percent of the planted area with cereals was found on the Mainland. The yield of wheat and barley appear to be high, however this is probably due to the small number of households planting these crops coupled with the weighting factor (Chart 2.17).

The yield of all cereal crops decreased over the period 1987 to 1998. Previous data covering the period 1986 to 2000 shows that the yield of maize during the census year was down by 36 percent, sorghum by 42 percent and 32 percent for paddy (Chart 2.18). This partially reflects the drought experienced during the year in many parts of the country, however other factors are involved in causing the diminishing negative trend in yield.

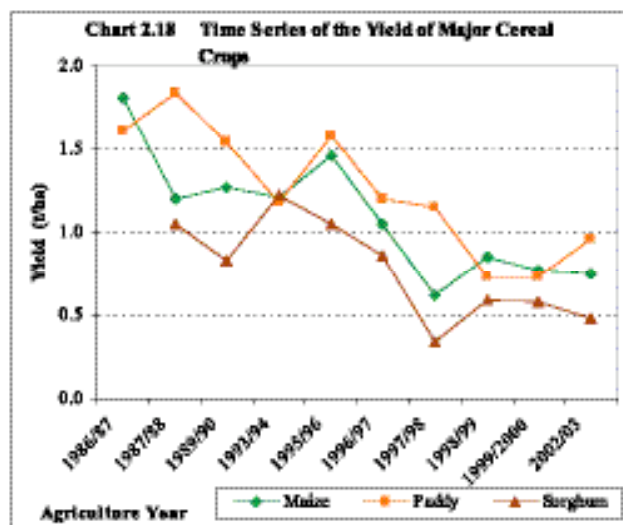
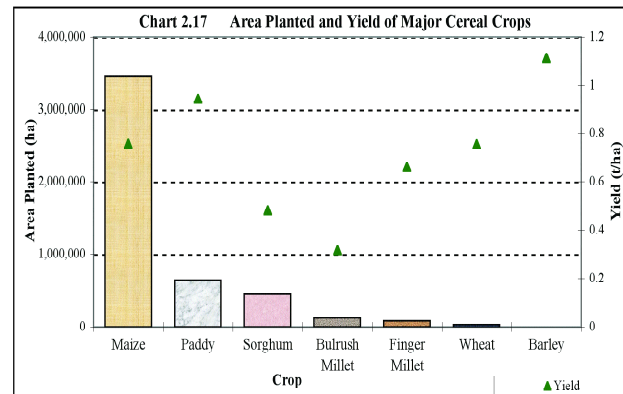
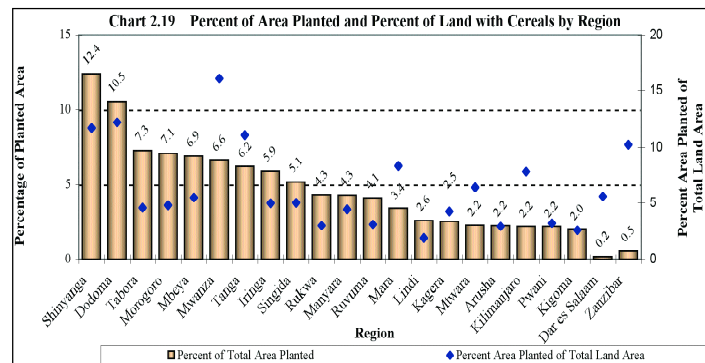


Table 2.1 Area Planted and Quantity Harvested by Season and Type of Cereal Crops

Crop	Rainy Season	Mainland			Zanzibar			Total		
		Area Planted (ha)	Quantity Harvested (t)	Yield t/ha	Area Planted (ha)	Quantity Harvested (t)	Yield t/ha	Area Planted (ha)	Quantity Harvested (t)	Yield t/ha
Maize	Short season	726,131	611,520	0.84	998	1,208	1.21	727,129	612,727	0.84
	Long season	2,736,403	2,002,451	0.73	1,642	1,938	1.18	2,738,045	2,004,388	0.73
Paddy	Short season	102,184	91,094	0.89	240	232	0.97	102,424	91,326	0.89
	Long season	518,653	503,525	0.97	21,374	10,127	0.47	540,027	513,652	0.95
Sorghum	Short season	52,009	43,220	0.83	93	41	0.45	52,101	43,261	0.83
	Long season	397,619	172,932	0.43	450	241	0.54	398,058	173,174	0.44
BulrushMillet	Short season	1,908	654	0.34	192	63	0.33	2,100	717	0.34
	Long season	122,303	38,559	0.32	120	88	0.74	122,423	38,647	0.32
Finger Millet	Short season	10,364	6,938	0.67	-	-	-	10,364	6,938	0.67
	Long season	73,120	48,376	0.66	-	-	-	73,120	48,376	0.66
Wheat	Short season	-	-	-	-	-	-	-	-	-
	Long season	31,224	23,521	0.75	-	-	-	31,224	23,521	0.75
Barley	Short season	190	91	0.48	-	-	-	190	91	0.48
	Long season	856	1,074	1.25	-	-	-	856	1,074	1.25
Total	Short season	892,786	753,516		1,522	1,544		894,308	755,060	
	Long season	3,880,178	2,790,439		23,585	12,394		3,903,763	2,802,832	
Grand Total		4,772,964	3,543,955		25,107	13,938		4,798,071	3,557,893	

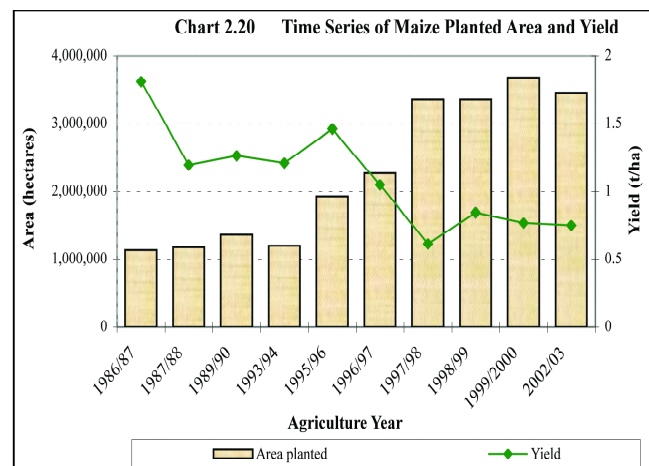
The short rainy season is relatively unimportant for cereal production (19% of the total area planted). There is little difference in this trend for the main cereal crops in the short rainy season with maize representing 21 percent of the total area planted with maize, followed by barley 18.2 percent and paddy 15.9 percent. Other minor cereals had much less planted area in the short rainy season with finger millet having only 12.4 percent, sorghum 11.6 percent and bulrush millet 1.7 percent (Table 2.1).

Over 50 percent of cereals are planted in eight regions. The largest area is found in Shinyanga with 591,440 ha (12.4%), followed by Dodoma with 502,753 ha (10.5%), Tabora with 347,455 ha (7.3%), Morogoro with 337,461 ha (7.1%), Mbeya with 328,941 ha (6.9%) and Mwanza with 315,648 ha (6.6%). Very small quantities of cereals are grown in Dar es Salaam and Zanzibar. Mwanza region has the highest concentration of cereal production with 16 percent of the total land area planted with cereals (Chart 2.19 and Map 2.15).

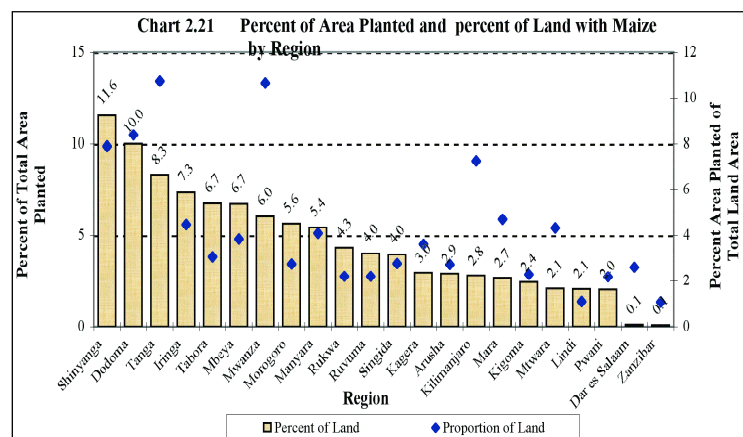


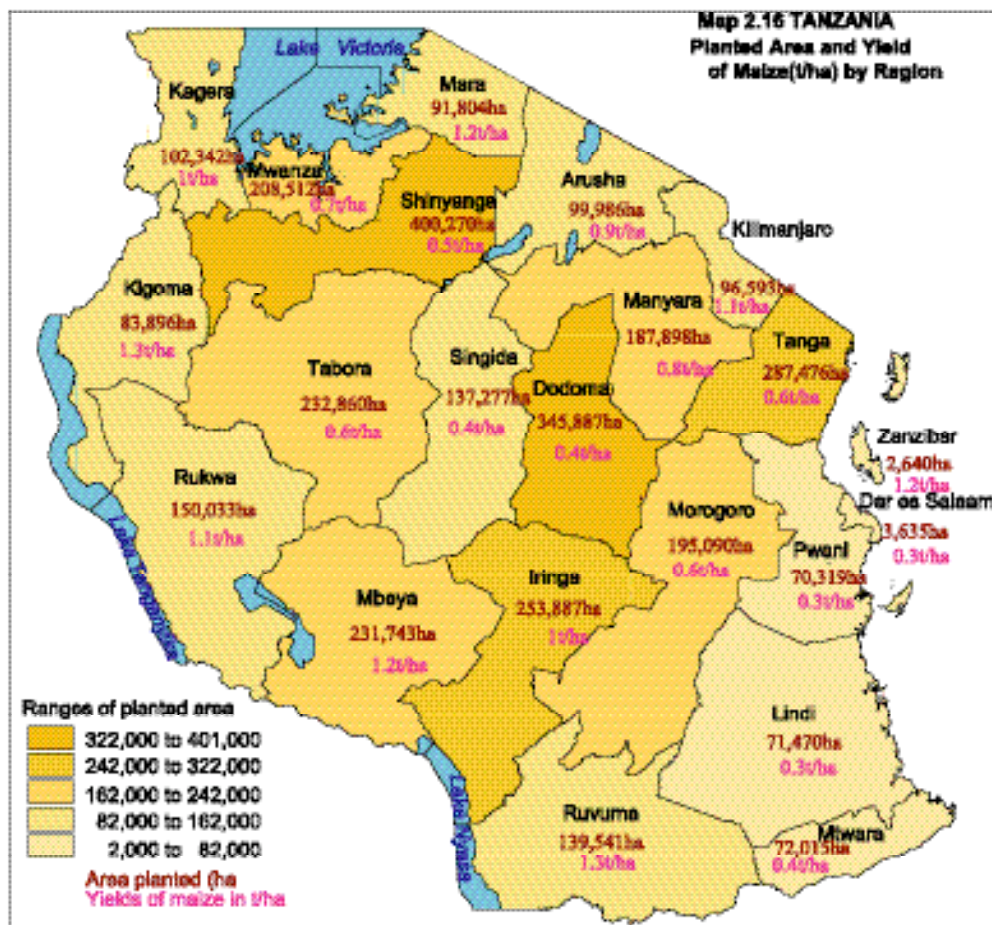
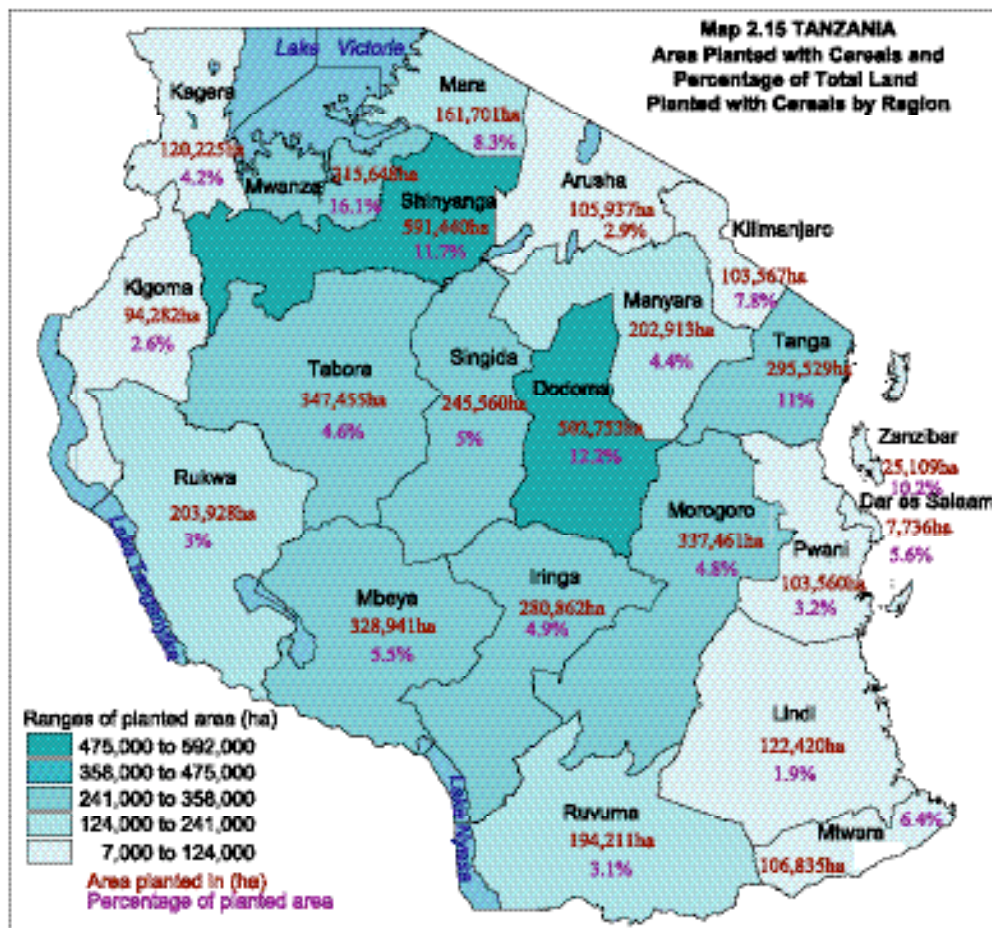
Maize

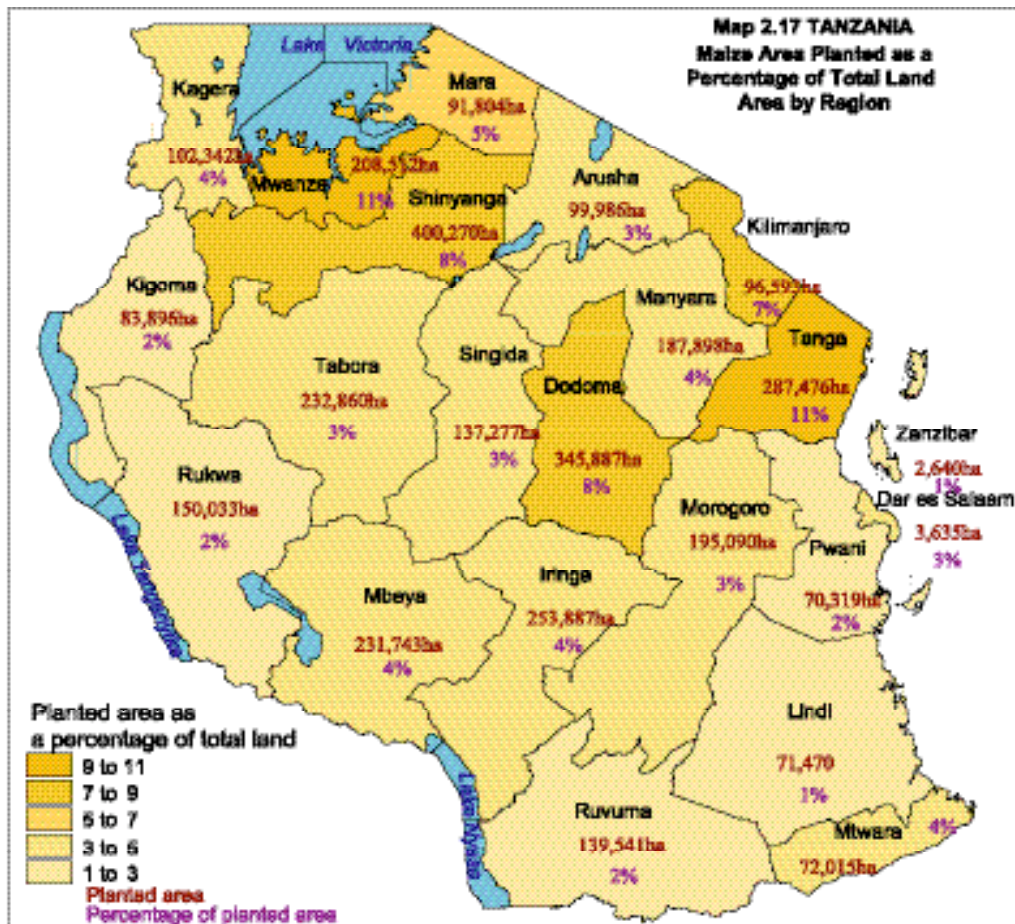
The number of households growing maize in Tanzania during the long rainy season was 3,103,925 (3,096,707 households on the Mainland and 7,218 in Zanzibar) and in the short rainy season the number was 1,429,630 households (1,424,672 on the Mainland and 4,958 in Zanzibar). This represents 65 percent of the total crop growing households in Tanzania for the long rainy season and 30 percent for the short rainy season. The total production of maize during the census year was 2,617,115 tonnes. Production has increased gradually by over a 1,000,000 tonnes since 1987 which is equivalent to an increase of about 142,857 tonnes per year. Production of other cereal crops remained stagnant over the same period (Chart 2.16).



Charts 2.16 and 2.20 show that whilst the yield of maize has dropped dramatically over the previous 10 years, the quantity produced has increased and this has been due to a large increase in the area under production. The area planted with maize remained constant over the period from 1986 to 1994 after which, the area under production expanded rapidly until 1998 and the area has remained constant ever since. Over the period 1988 to 1996 the yield of maize remained constant at



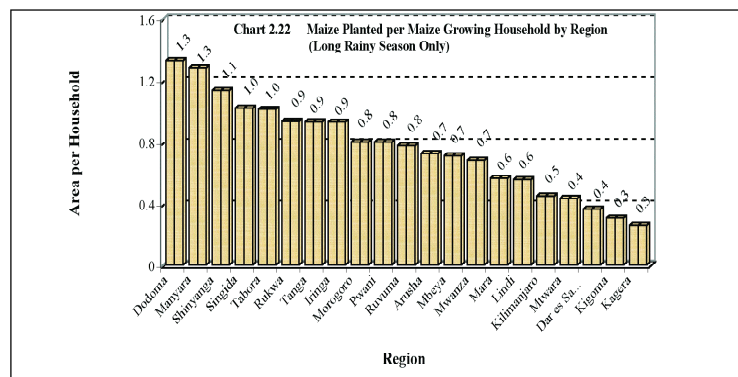




around 1.25 tonnes per hectare. However, there was a sharp decline in yield over the period 1996 to 1998 (down to 0.6t/ha) and it has remained at this low level since then. (Chart 2.20).

Shinyanga region has the largest planted area of maize (400,270 ha, 11.6%), followed by Dodoma (345,887 ha, 10%), Tanga (287,476 ha, 8.3%), Iringa (253,887 ha, 7.3%), Tabora (232,860 ha, 6.7%) and Mbeya (231,743 ha, 6.7%). However, the regions with the highest proportion of land with maize in the country is found in Mwanza, Tanga, Dodoma, Shinyanga and Kilimanjaro regions. The lowest proportion of land under maize is found in Lindi and Zanzibar (Chart 2.21 and Maps 2.16 and 2.17).

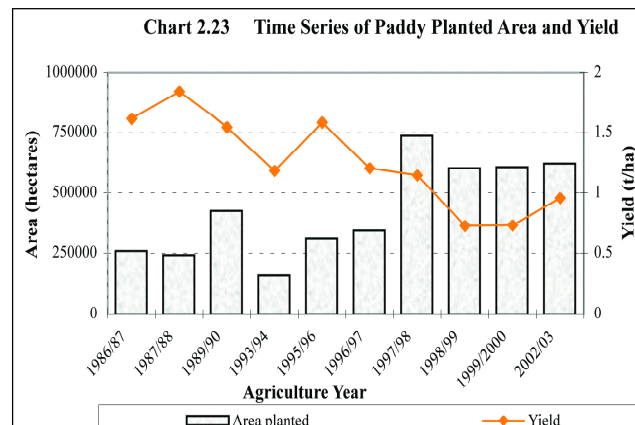
The area planted per maize growing household is larger in Dodoma, Manyara and Shinyanga. The regions with comparatively moderate planted area per household are Morogoro, Pwani and Ruvuma. The smallest areas planted with maize per household are found in Kagera, Kigoma and Dar es Salaam (Chart 2.22 and Map 2.18).



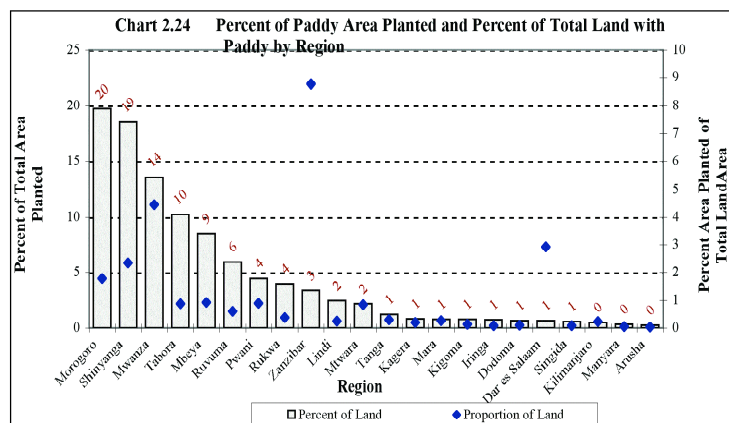
Paddy

The number of households growing paddy in the long rainy season was 810,314 (756,634 on the Mainland and 53,680 in Zanzibar) and 155,328 (154,458 on the Mainland and 870 in Zanzibar) in the short rainy season. This represents 17 percent of the total crop growing households in Tanzania in the long rainy season and 3 percent in the short rainy season.

As is the case of maize, the area planted with paddy has increased dramatically since the last census in 1994 with most of this increase occurring over the period 1997 to 1998. The planted area has more or less remained at the same level since then and is currently 642,451 ha. The total production of paddy during the census year was 604,978 tonnes (594,619 tonnes on the Mainland and 10,359 in Zanzibar). Production has remained more or less constant since 1987 (Chart 2.16). However, the yield of paddy has declined erratically since 1987 from 1.7 t/ha to about 1.0 t/ha during the census year. From 1996 to 1999 there was a sharp and consistent decline in yield. However, the yield increased marginally during the census year (Chart 2.23).



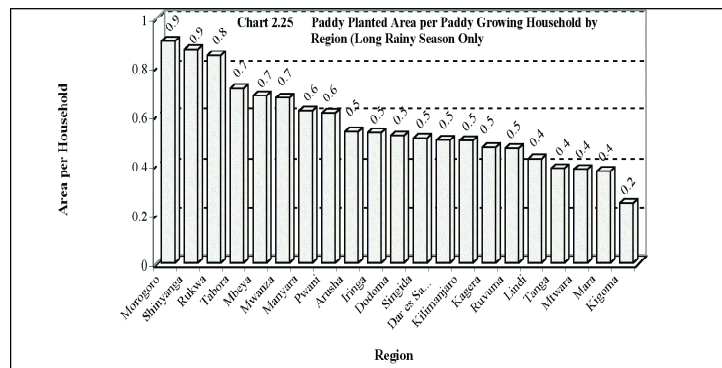
The planted area of paddy over the period 1987 to 2003 follows a similar trend to that of maize with a more or less constant area planted during the period 1987 to 1996. Between 1996 and 1998



the area planted almost tripled from around 250,000 hectares to 750,000 hectares. The area planted remained almost constant at this level up to the time of this census. The increase in planted area has been offset by a decline in yield resulting in no change in the quantity of paddy produced since 1987 (Charts 2.16 and 2.23).

Paddy is mainly produced in five regions. Morogoro and Shinyanga regions have the largest planted area of paddy (126,527 ha, 19.7% and 118,916 ha, 18.5% respectively). This is followed by Mwanza (87,231 ha, 13.6%), Tabora (65,657 ha, 10.2%) and Mbeya (54,743 ha, 8.5%). Zanzibar has a comparatively high proportion of land with paddy, whereas Mwanza region has a comparatively moderate proportion of land with paddy. The rest of the regions have very small proportion (Chart 2.24 and Maps 2.19 and 2.20).

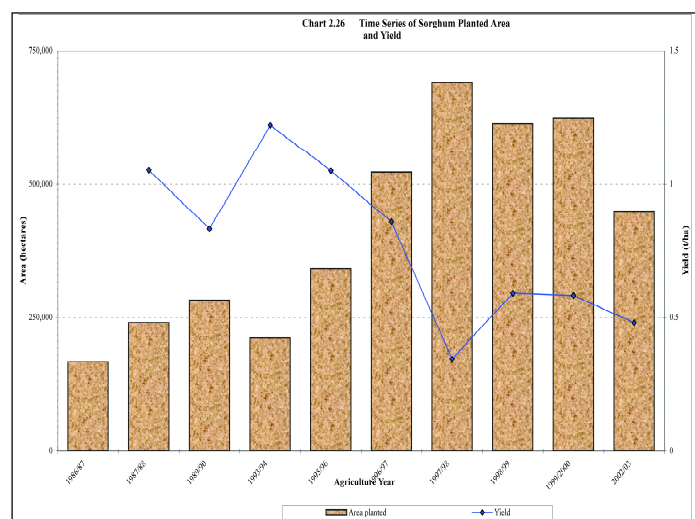
Morogoro, Shinyanga and Rukwa regions had the largest planted area of paddy per paddy growing household. Although there is a moderate to low production of paddy in Rukwa, the households that produce paddy have among the largest area planted per household (Chart 2.25 and Map 2.21).



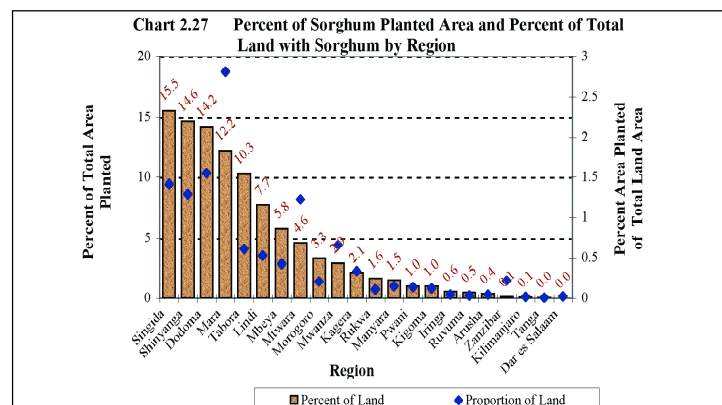
Sorghum

The number of households growing sorghum in the long rainy season was 583,022 (580,925 on the Mainland and 2,097 in Zanzibar) and 121,541 (120,878 on the Mainland and 663 in Zanzibar) in the short rainy season. This represents 12 percent of the total crop growing households in Tanzania in the long rainy season and 3 percent in the short rainy season.

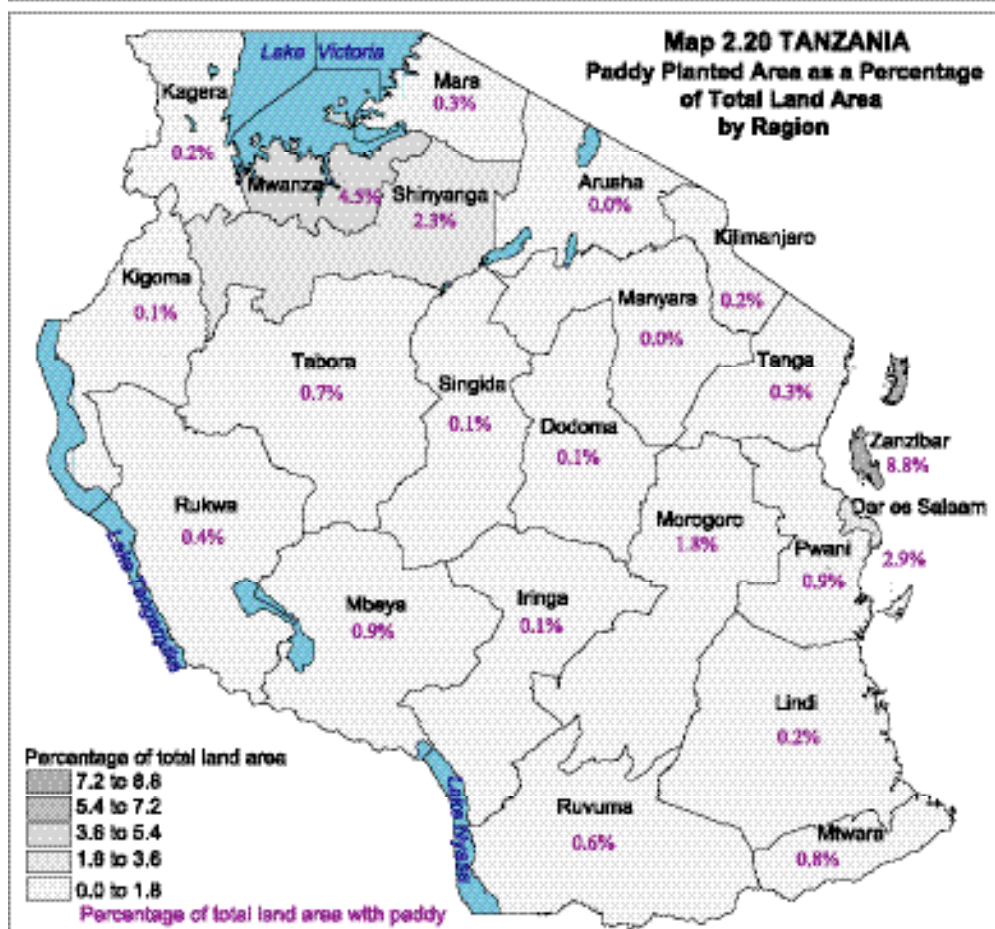
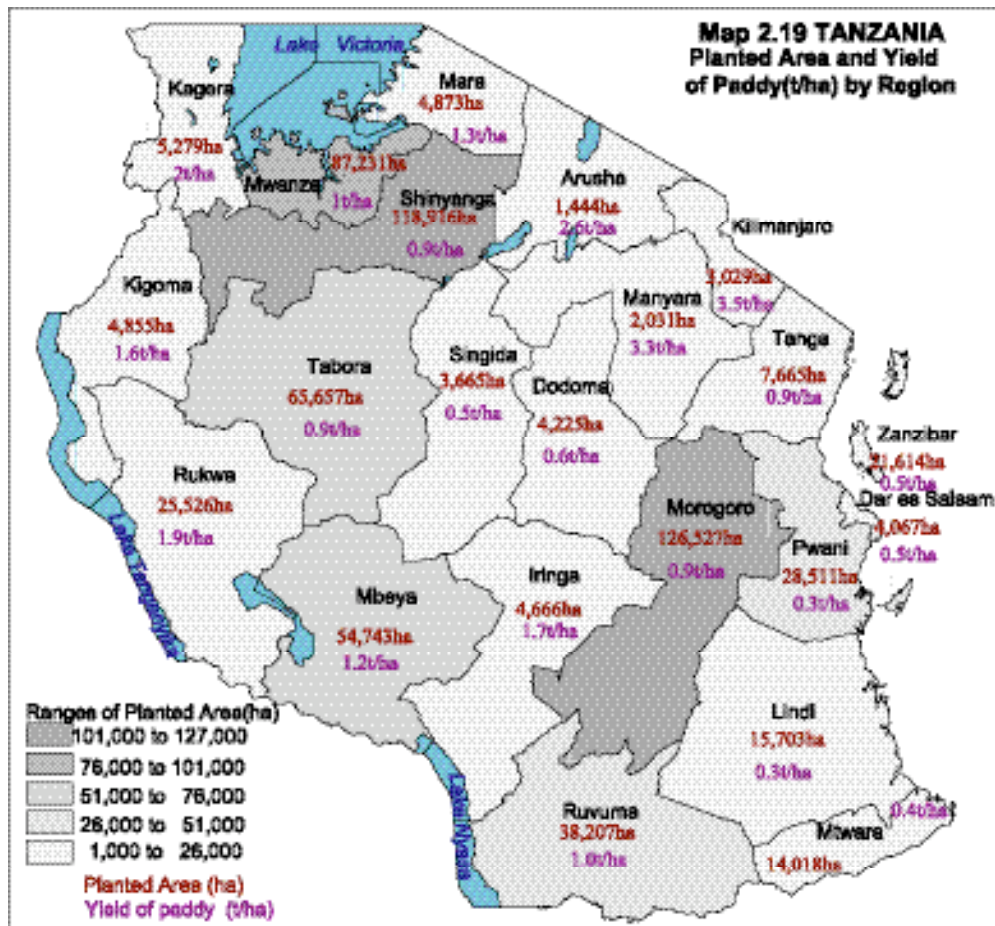
The total production of sorghum during the census year was 216,435 tonnes (216,152 tonnes on the Mainland and 283 in Zanzibar). Production has remained more or less constant from 1987 to 2003 (Chart 2.16).

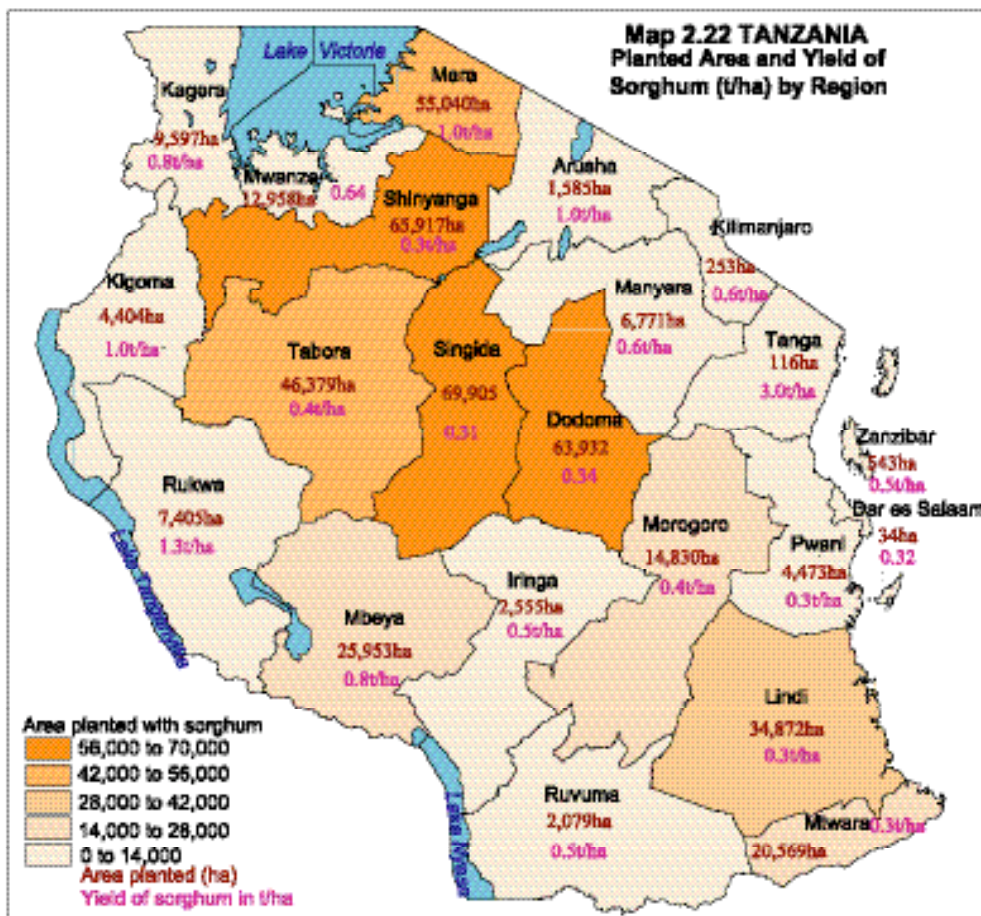
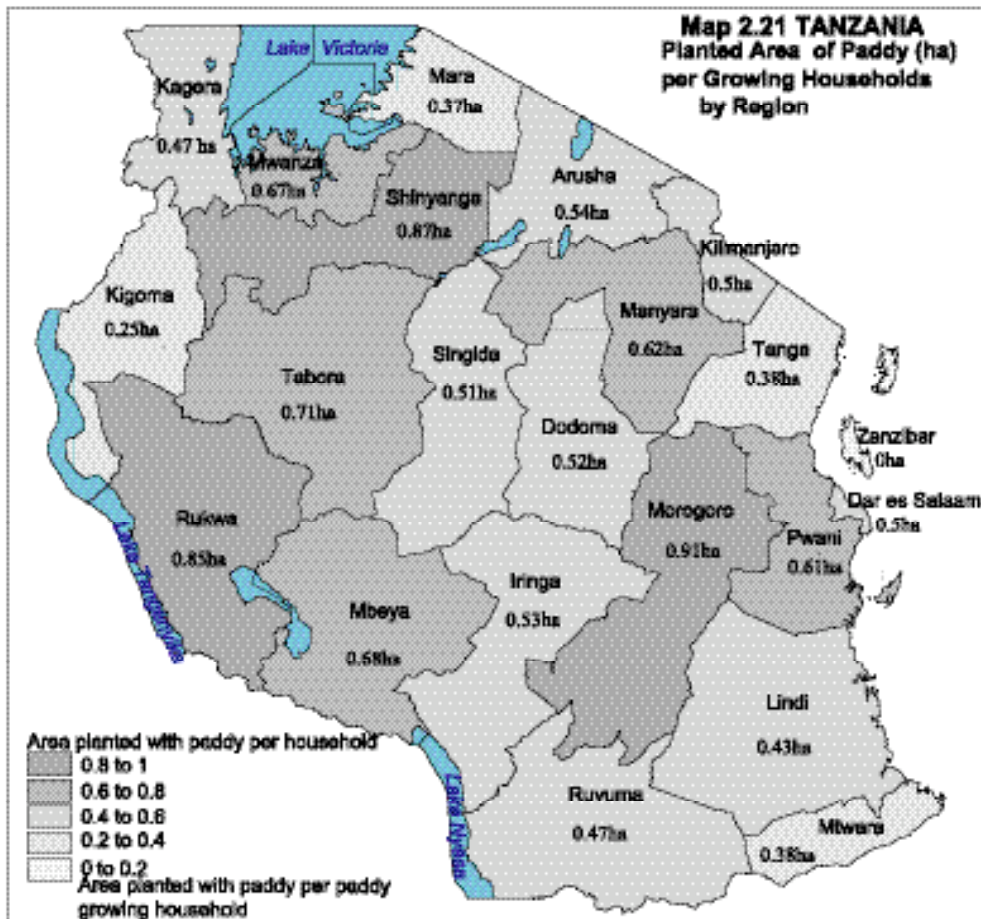


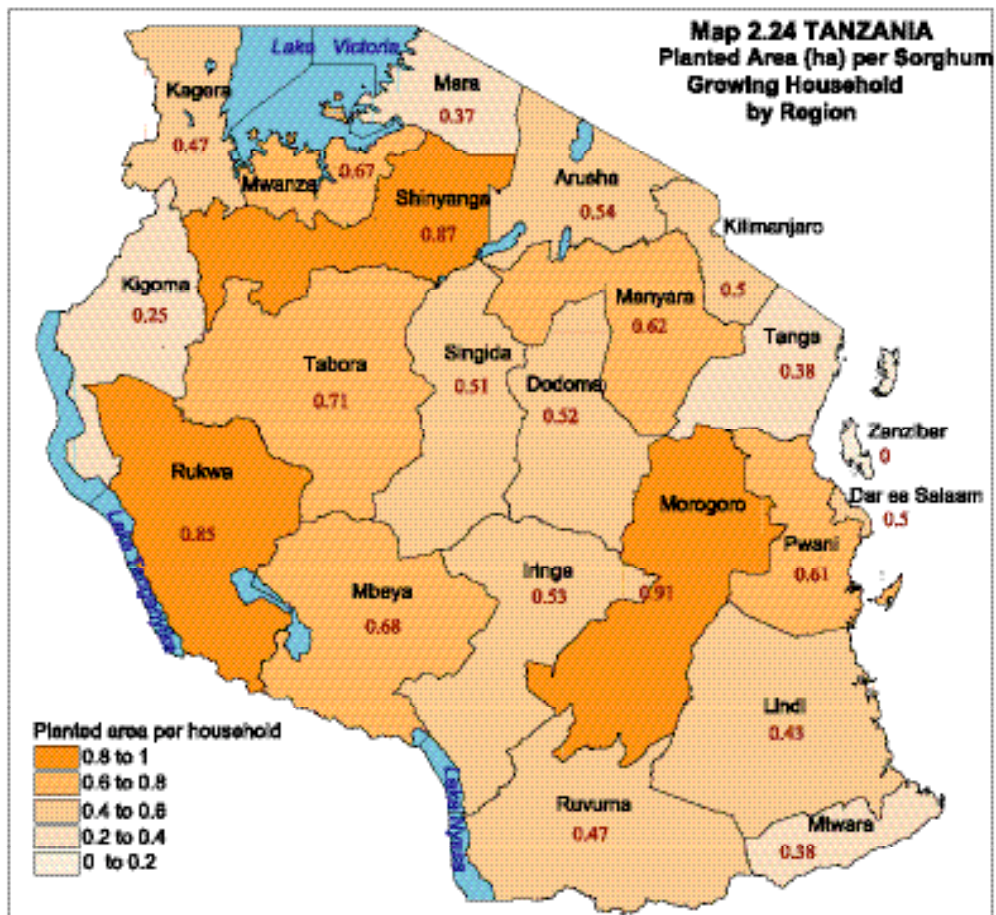
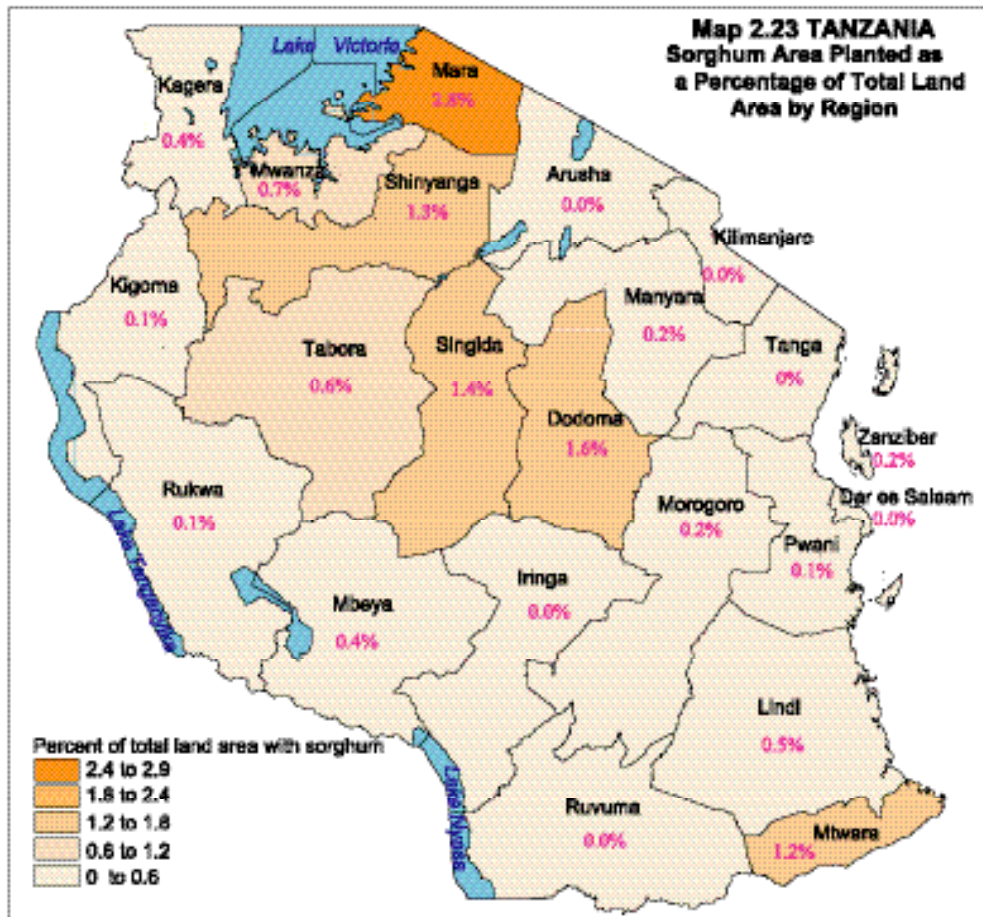
The yield of sorghum declined steadily over the period 1994 to 1998 from 1.22 t/ha to about 0.5 t/ha and it has remained at this low level up to the census year. The yield for the year 1986/87 was relatively very high (2.3t/ha) and has not been included in the chart as it is believed to be unrepresentative (Chart 2.26).



The area planted with sorghum remained almost constant over the period 1986 to 1996. From 1996 to 1998 the area planted increased dramatically by about 100 percent, to about



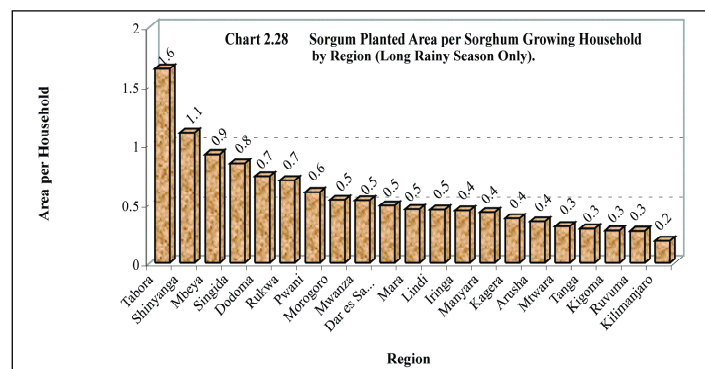




700,000 ha and remained at this level up to 1999. The census year showed a marked reduction in area planted with sorghum to less than 500,000 ha (Chart 2.26).

Singida, Shinyanga and Dodoma regions have the largest planted area of sorghum (69,905 ha, 15.5%; 65,917 ha, 14.6% and 63,932 ha, 14.2% respectively). This is followed by Mara (55,040, 12.2%), Tabora (46,379 ha, 10.3%) and Lindi (34,872 ha, 7.7%). There is virtually no sorghum grown in Dar es Salaam, Tanga, Kilimanjaro and Zanzibar. A comparatively high proportion of land with sorghum was found in Mara followed by Dodoma, Singida and Shinyanga (Chart 2.27 and Maps 2.22 and 2.23).

The area planted per sorghum growing household is largest in Tabora, Shinyanga, Mbeya and Singida. Kilimanjaro, Kigoma, Ruvuma and Tanga have the smallest planted area per sorghum growing households. Mbeya has a moderate production of sorghum, however it has a large planted area per households indicating that the households that produce sorghum plant relatively large areas (Chart 2.28 and Map 2.24).



Other Cereals

Other cereals are produced in small quantities, however they are important in some regions. Bulrush millet is produced mainly in two regions Dodoma and Singida with planted areas of 78,555 and 30,783 ha respectively representing 88 percent of the total area planted with bulrush millet. Finger millet is planted in five regions: Rukwa with 18,967 ha representing 22.7 percent of the total area planted, followed by Ruvuma (10,287 ha, 12.3%), Dodoma (10,153 ha, 12.2%), Mbeya (10,028 ha, 12%) and Mara (9,957 ha, 11.9%).

2.3.5 Root and Tuber Crops Production

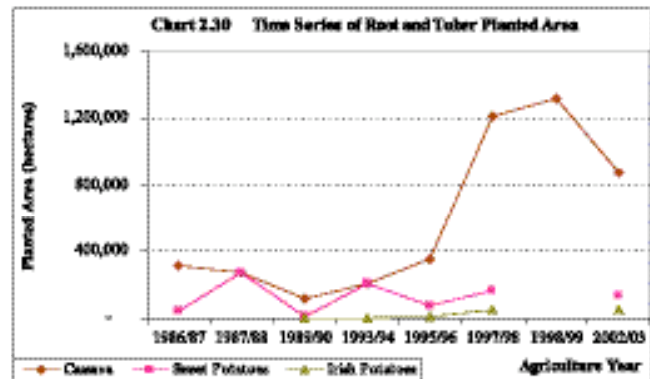
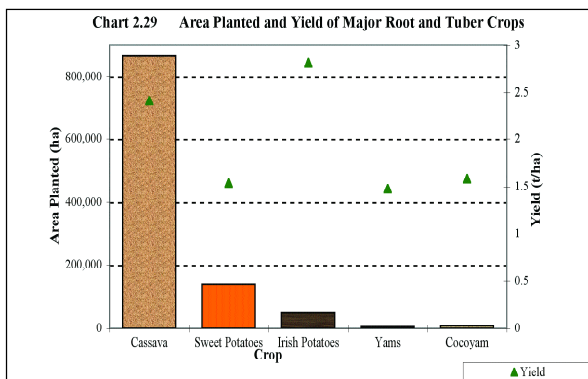
Crop	Season	Mainland			Zanzibar			Total		
		Area Planted (ha)	Quantity Harvested (t)	Yield t/ha	Area Planted (ha)	Quantity Harvested (t)	Yield t/ha	Area Planted (ha)	Quantity Harvested (t)	Yield t/ha
Cassava	Short season	11,702	13,527	1.16	0	0	0.00	11,702	13,527	1.16
	Long season	820,130	2,021,353	2.43	34,002	67,958	2.00	854,132	2,089,311	2.41
Sweet Potatoes	Short season	47,755	83,046	1.74	1,488	2,309	1.55	49,243	85,355	1.73
	Long season	87,712	125,165	1.43	3,743	5,958	1.59	91,456	131,123	1.43
Irish Potatoes	Short season	14,402	33,791	2.35	0	0	-	14,402	33,791	2.35
	Long season	36,888	110,606	3.00	0	0	-	36,888	110,606	3.00
Yams	Short season	1,140	1,827	1.60	1,036	1,416	1.37	2,176	3,243	1.49
	Long season	2,513	3,771	1.50	467	609	1.30	2,980	4,380	1.47
Coco yams	Short season	3,938	4,887	1.24	502	404	0.80	4,440	5,291	1.19
	Long season	3,144	7,160	2.28	526	407	0.77	3,670	7,567	2.06
Total	Short season	78,937	137,078		3,026	4,128		81,863	141,206	
	Long season	950,388	2,268,054		38,738	74,932		989,125	2,342,986	
Grand Total		1,029,325	4,405,132		41,764	79,060		1,071,089	2,484,192	

Note: Cassava is produced in both the long and short rainy seasons. However, it was not possible to separate cassava production into the different growing seasons as the growth period spans both seasons and even over a year for certain varieties. Because of this cassava has been combined and is reported in the long rainy season only

The total production of roots and tubers was 2,484,192 tonnes (2,405,132 tonnes on the Mainland and 79,060 in Zanzibar). Cassava production is higher than any other root or tuber crop in Tanzania with a total production of 2,102,838 tonnes (2,034,880 tonnes on the Mainland and 67,958 in Zanzibar) representing 84.6 percent of the total root and tuber crop production. This is followed by sweet potatoes with 216,478 tonnes (8.8%), Irish potatoes (144,397t, 5.8%), coco yams (12,858t, 0.5%) and yams with (7,623t, less than 0.3%) (Table 2.2).

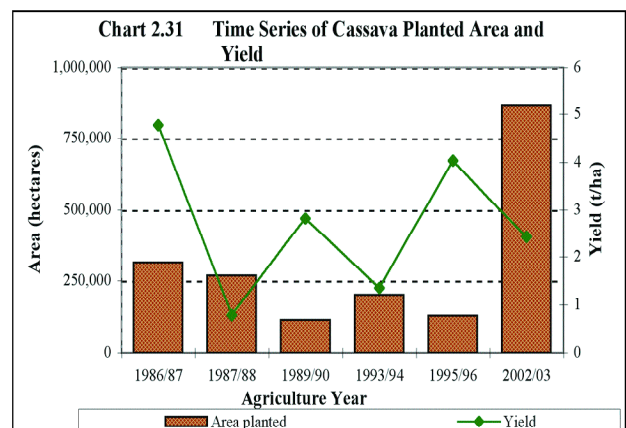
The area planted with cassava is much greater than other root and tuber crops (865,834 ha, 81% of the roots and tuber planted area). Cassava, together with beans and paddy, represent the other most important crops in Tanzania in terms of total planted area (11.1%, 9.5% and 8.2% of the total area planted respectively). Other roots and tubers had a planted area of 140,698 ha (13% of the planted area with roots and tubers) for sweet potatoes, 51,290 ha (5%) for Irish potatoes. The remaining root crops, yams and coco yams, are grown in minor quantities (less than 1% of the roots and tuber planted area) (Chart 2.29). The production of roots and tubers in Zanzibar is minor (3.2%) compared to that of the Mainland.

Cassava is the only root and tuber crop with an increase in planted area since 1986. This increase occurred during the period 1996 to 1998 (Chart 2.30). It is difficult to divide the planted area and production between the short and long rainy seasons for roots and tubers as much of the production of cassava was reported in the permanent crop section of the questionnaire which did not distinguish the season. However, excluding cassava, 34 percent of the planted area with roots and tubers was in the short rainy season. Of the total planted area with sweet potatoes, 35 percent was planted during the short rainy season. A relatively high percent of yams (42%) and coco yams (55%) were also produced in the short rainy season.



With the exception of cassava and Irish potatoes the yields of roots and tubers was relatively low. Time series data show that cassava is the only root and tuber that has increased its production and like all other major crops this increase was over the period 1995 to 1998. The production of other roots and tubers was stable over the 1994 to 2003 period.

Over 70 percent of roots and tubers are planted in eight regions. The largest planted area was found in Mwanza with 176,634 ha (16.5%), followed by Mara with 133,202 ha (12.4%), Mtwara with 114,309 ha (10.7%), Ruvuma with 94,591 ha (8.8%), Kigoma with 78,509 ha (7.3%), Kagera with 64,593 ha (6%), Pwani with 51,160 ha (4.8%) and Shinyanga with 48,080 ha (4.5%).



Cassava

The number of households growing cassava in Tanzania was 1,213,958 (1,130,226 on the Mainland and 83,732 in Zanzibar). This represents 25% of the total crop growing households in Tanzania. The total production of cassava during the census year was 2,102,838 (2,034,880 tonnes on the Mainland and 67,958 in Zanzibar). According to previous censuses and surveys, the area planted with cassava remained low for the period 1986 to 1996. Since 1996 the area planted with cassava increased sharply from a low level of 175,000 ha to over 800,000 ha (Chart 2.31). Chart 2.31 shows that whilst the yield of cassava has varied erratically between 1986 and 2003, it is the very large increase in the planted area of cassava over the period 1996 to 1998 that explains the increase in production during these years.

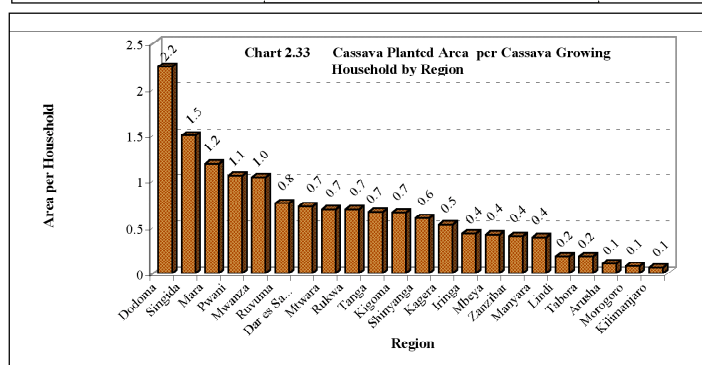
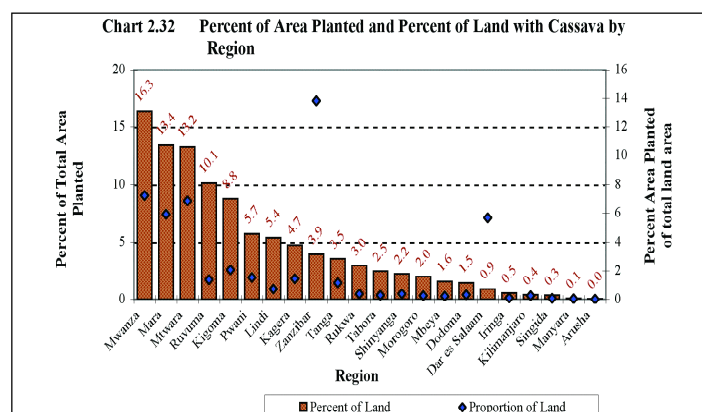
Mwanza Region has the largest planted area of cassava (141,223 ha, 16.3%), followed by Mara (115,825 ha, 13.4%), Mtwara (114,157 ha, 13.2%), Ruvuma (87,591 ha, 10.1%) and Kigoma (75,821 ha, 8.8%). However, the region with the highest proportion of its planted area under cassava was in Zanzibar. This is followed by Mwanza, Mara, Mtwara and Dar es Salaam. The lowest production and smallest proportion of land used for cassava are found in Arusha, Manyara, Singida, Kilimanjaro and Iringa regions (Chart 2.32 and Map 2.25 and 2.26).

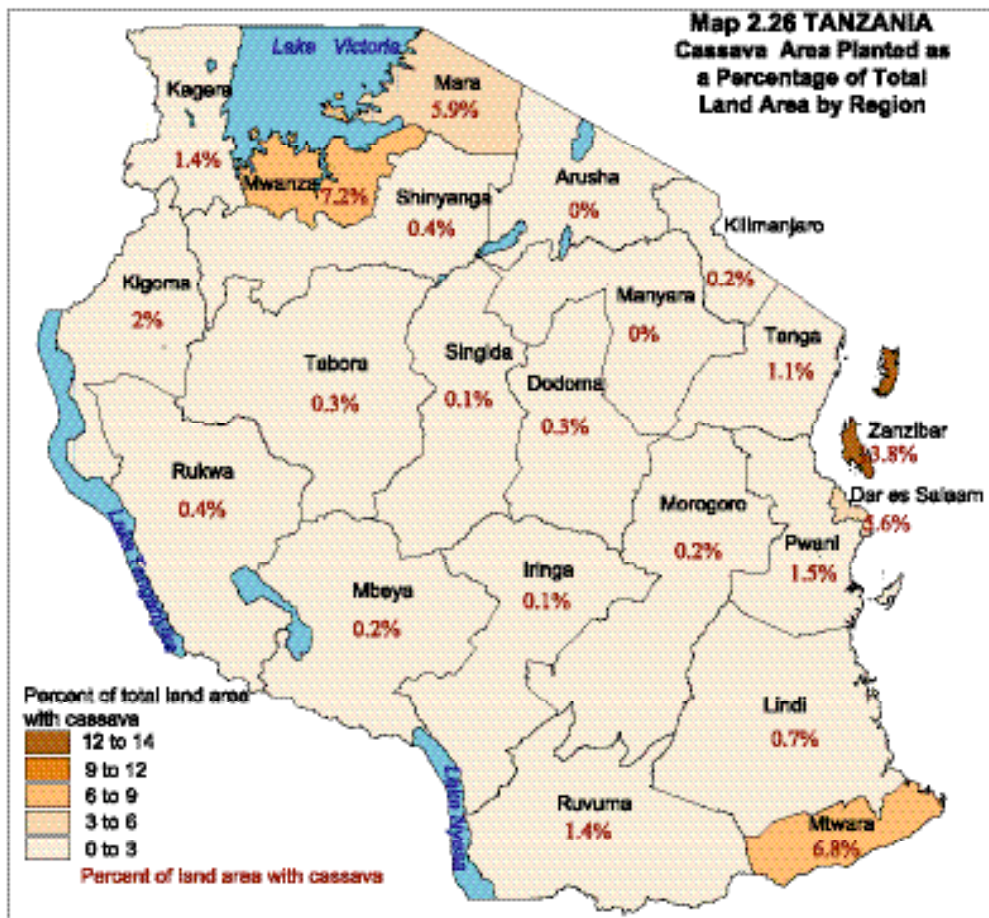
The average planted area of cassava is 0.52 ha per cassava growing household. However, there are large regional variations. The area planted per cassava growing household is largest in Dodoma (2.2 ha). This is followed by Singida (1.5 ha), Mara (1.2 ha), Pwani (1.1 ha) and Mwanza (1 ha). The smallest area planted with cassava per cassava growing household was found in Kilimanjaro, Morogoro and Arusha (Chart 2.33 and Map 2.27).

Other roots and tubers are not nearly as important as cassava in terms of area planted. However, they are more important in certain regions than in others. The largest areas planted with sweet potatoes are found in Mwanza, Shinyanga, Kagera and Mara regions whilst for Irish potatoes, the largest planted areas are found in Iringa, Tanga and Mbeya regions. Other roots and tubers are of minor importance.

2.3.6 Pulse Crop Production

The total production of pulses was 405,253 tonnes (404,553 tonnes on the Mainland and 699 in Zanzibar). The production of beans is higher than any other pulse crop in Tanzania with a total production of 333,312 tonnes (333,308 tonnes on the Mainland and only 4 tonnes in Zanzibar) representing 82 percent of the total pulse production. Other pulses are produced in minor quantities with chick peas having a production of 29,885 tonnes (7%), cowpeas (17,672t, 4%), bambara nuts (9,773t, 2%), field peas (8,497t, 2%), and green gram with 5,007t, (1%) (Table 2.3). In Zanzibar cowpeas have the highest production of all pulses.





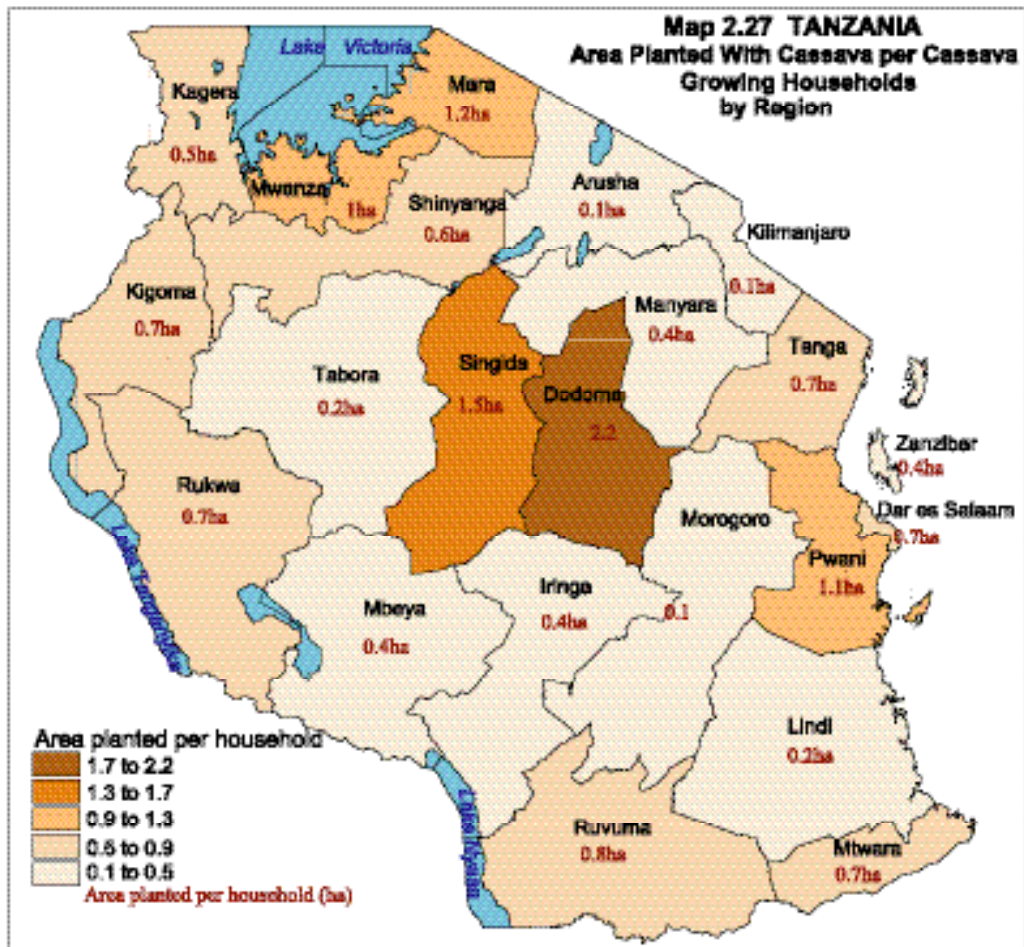


Table 2.3 Area Planted and Quantity Harvested by Season and Type of Pulse Crop

Crop	Season	Mainland			Zanzibar			Total		
		Area Planted (ha)	Quantity Harvested (t)	Yield t/ha	Area Planted (ha)	Quantity Harvested (t)	Yield t/ha	Area Planted (ha)	Quantity Harvested (t)	Yield t/ha
Beans	Short season	259,461	125,739	0.48	14	2	0.13	259,475	125,741	0.48
	Long season	486,452	207,569	0.43	14	2	0.17	486,466	207,571	0.43
Chick Peas	Short season	629	335	0.53	0	0	0.00	629	335	0.53
	Long season	62,398	29,550	0.47	0	0	0.00	62,398	29,550	0.47
Cowpeas	Short season	30,000	6,869	0.23	2,033	367	0.18	32,033	7,236	0.23
	Long season	44,119	10,302	0.23	493	134	0.27	44,612	10,436	0.23
Bambara nuts	Short season	1,328	830	0.62	0	0	0.00	1,328	830	0.62
	Long season	23,445	8,937	0.38	7	6	0.86	23,452	8,943	0.38
Field Peas	Short season	2,006	1,352	0.67	0	0	0.00	2,006	1,352	0.67
	Long season	8,715	7,145	0.82	0	0	0.00	8,715	7,145	0.82
Green Gram	Short season	11,331	2,940	0.26	492	134	0.27	11,823	3,074	0.26
	Long season	7,451	1,896	0.25	187	37	0.20	7,638	1,933	0.25
Mung Beans	Short season	185	127	0.69	15	7	0.47	200	134	0.67
	Long season	794	692	0.87	61	10	0.02	854	702	0.82
Pigeon Peas	Short season	6	0	0.00	0	0	0.00	6	0	0.00
	Long season	401	270	0.67	0	0	0.00	401	270	0.67
Total	Short season	304,945	138,193		2,554	509		307,499	138,702	
	Long season	633,775	266,361		761	190		634,536	266,550	
Grand Total		938,719	404,553		3,316	699		942,035	405,253	

The total area planted with pulses was 942,035 ha (12% of the total planted area with annual crops). Of the total area planted with pulses, beans occupied 745,941 ha (79%), cow peas (76,645 ha, 8%) and chick peas (63,027, 7%) (Chart 2.34). Almost 100 percent of the planted area with pulses and found on the Mainland (Table 2.3).

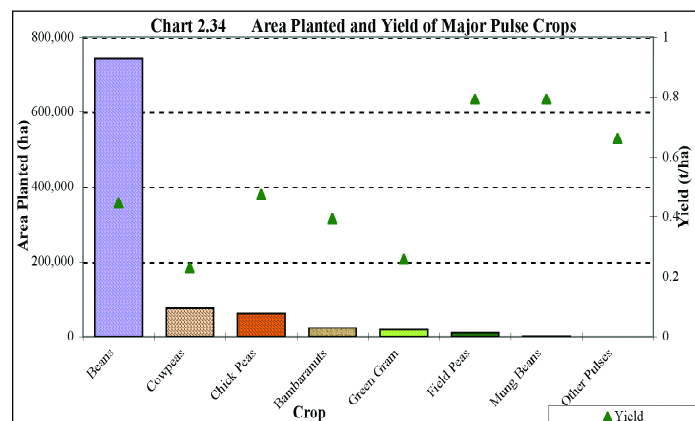
The short rainy season is less important for pulse production with 33 percent of the total area planted during the short rainy season. Most green gram production is in the short rainy season (61% of the green gram planted area).

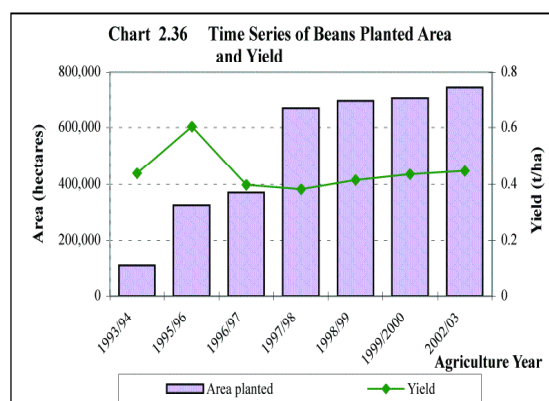
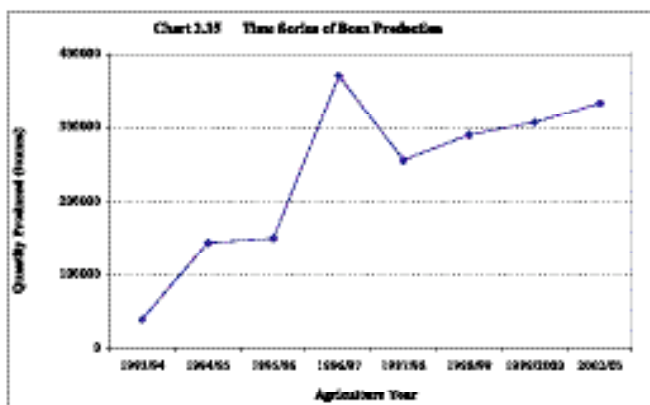
The percentage of total planted area of beans and cowpeas in the short rainy season is 35 and 42 percent respectively (Table 2.3).

Over 60 percent of pulses are planted in seven regions. The largest area is found in Dodoma at 172,368 ha (18.3%), followed by Arusha with 92,543 ha (9.8%), Tanga with 70,311 ha (7.5%), Kilimanjaro with 69,959 ha (7.4%), Morogoro with 67,060 ha (7.1%), Pwani with 58,121 ha (6.2%) and Dar es Salaam with 50,745 ha (5.4%).

Beans

The number of households growing beans in Tanzania during the long rainy season was 1,263,475 (1,263,368 households on the Mainland and 107 in Zanzibar) and 118,662 households in the short rainy season (118,595 households on the Mainland and 67 in Zanzibar). This represents 27 percent of the total crop growing households in Tanzania in the long rainy season and 2.5 percent in the short rainy season.

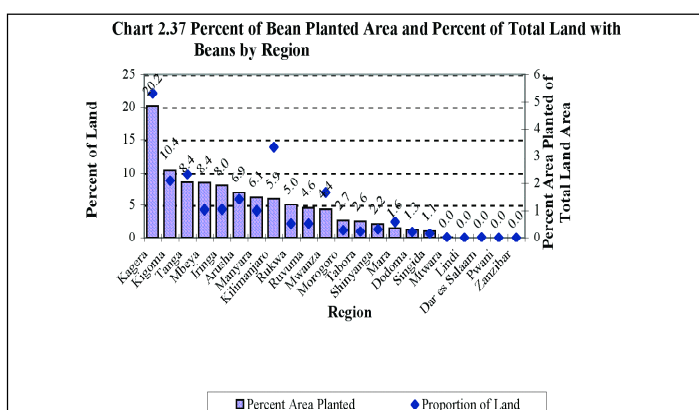




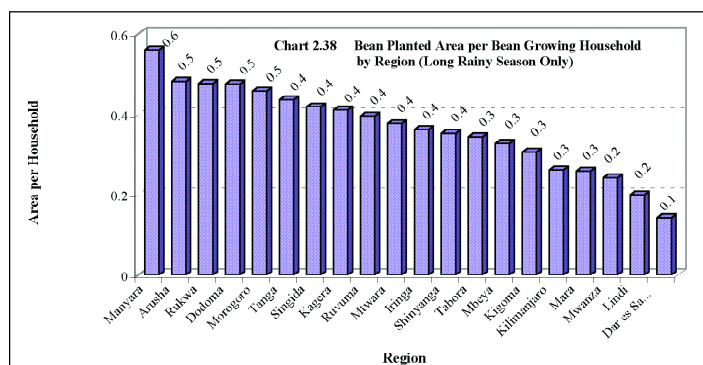
The total production of beans during the census year was 333,312 tonnes. Time series data on beans production shows a trend similar to that of maize, with production rising steadily from 1994 to 2003 from around 40,000 tonnes to 330,000 tonnes which is equivalent to an increase of 31,000 tonnes per year (Chart 2.35). The yield of beans has remained constant since 1994 at around 0.45 t/ha (Chart 2.36).

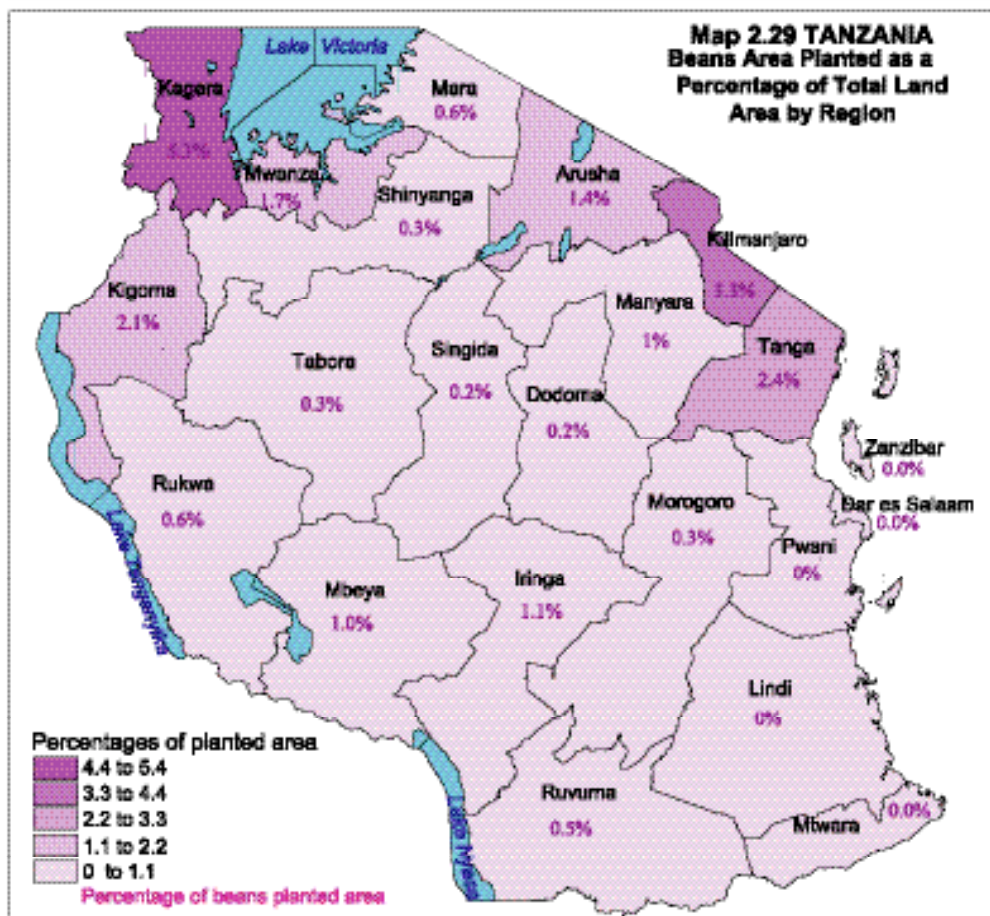
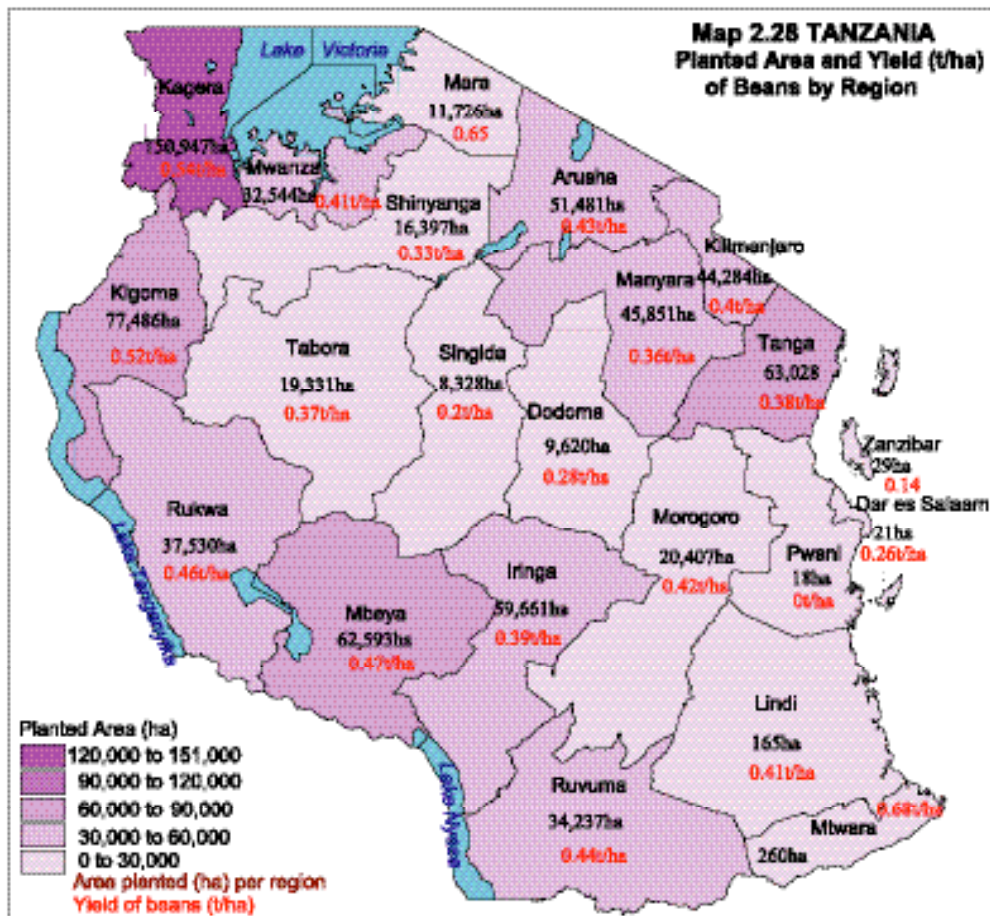
The area planted with beans increased dramatically from 100,000 ha in 1994 to around 700,000 in 1998 and it is this increase in area planted which accounts for the increased production and not an increase in yield. The area under production has remained constant at around this level since then (Chart 2.36).

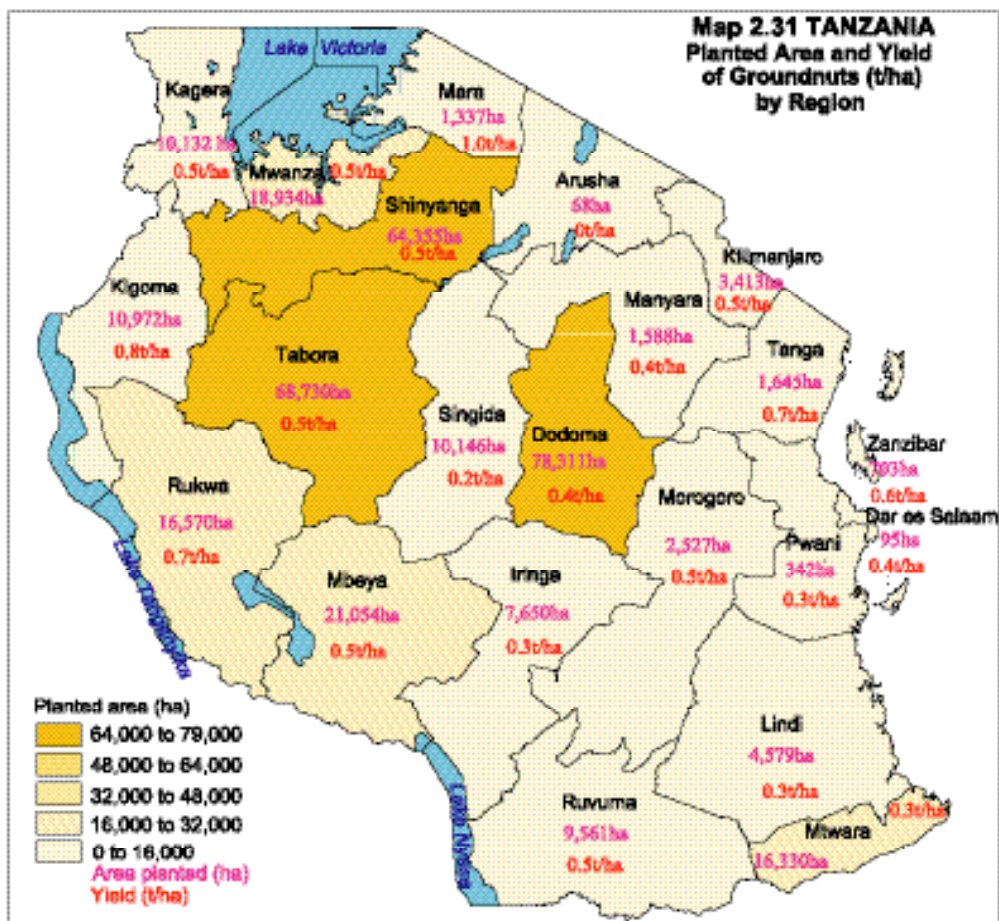
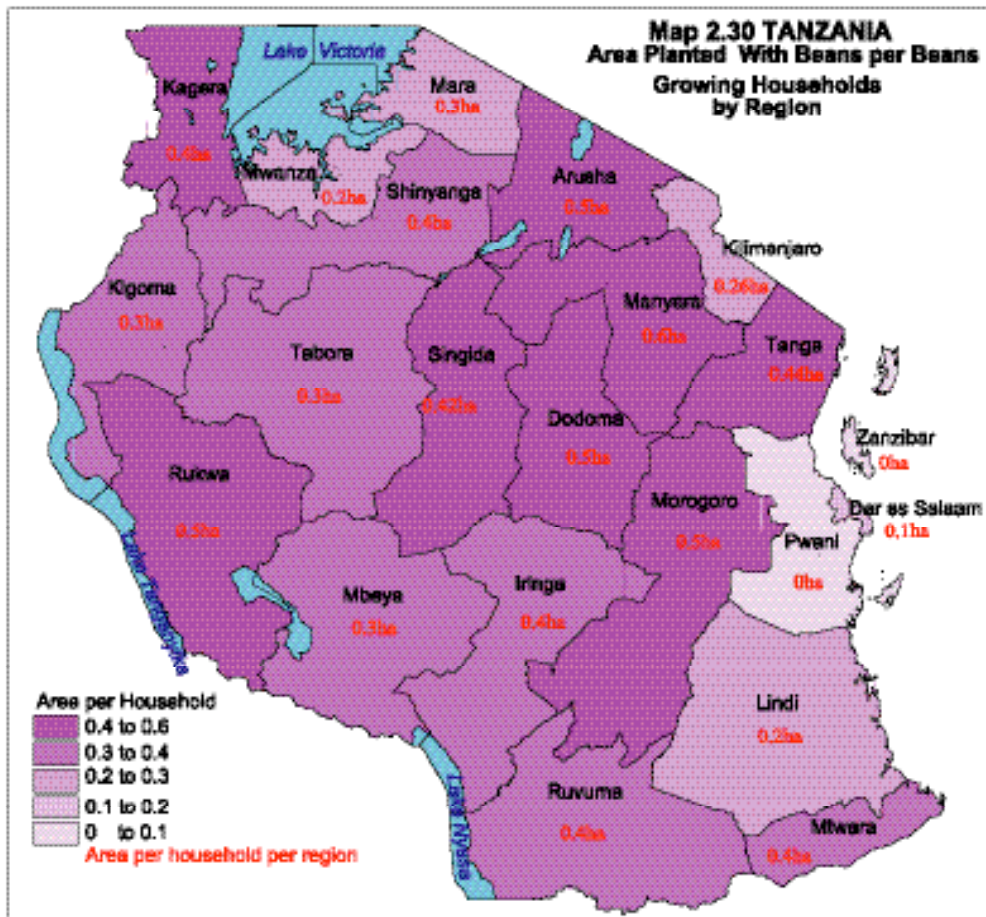
Kagera region has the largest planted area of beans (150,947 ha, 20.2%) and has around twice as much as the next highest region. This is followed by Kigoma (77,486 ha, 10.4%), Tanga (63,028 ha, 8.4%), Mbeya (62,593 ha, 8.4%) and Iringa (62,593 ha, 8.4%). The highest proportion of land with beans is also found in Kagera (5.3%) with Kilimanjaro (3.3%) having the second highest proportion. Very small amounts of beans are grown in Zanzibar, Pwani, Dar es Salaam, Lindi and Mtwara (Chart 2.37 and Maps 2.28 and 2.29).



Manyara, Arusha, Rukwa and Dodoma have the largest area of land planted with beans per household. Small quantities of beans is produced in Dodoma, however, the households that produce beans plant a relatively large area. Mwanza, Lindi, and Dar es Salaam plant small areas of beans per household (Chart 2.38 and Map 2.30).

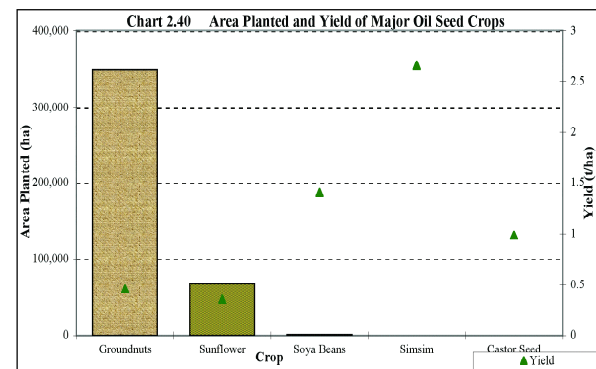
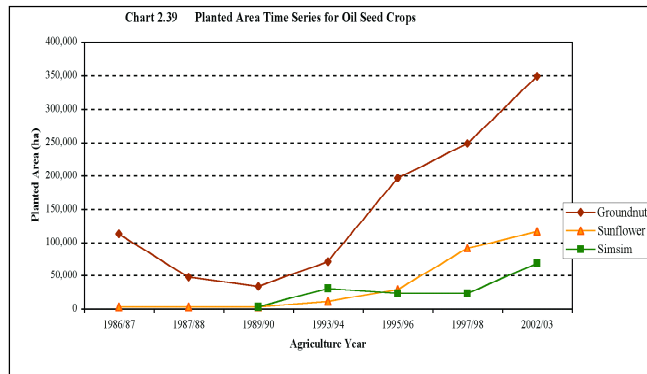






2.3.7 Oil Seed Production

The total oil seed production was 240,297 tonnes (239,909 tonnes on the Mainland and 388 tonnes in Zanzibar). The production of groundnuts is higher than any other oil seed crop in Tanzania with a total production of 160,258 tonnes (159,871 tonnes on the Mainland and 387 tonnes in Zanzibar) representing 66.7 percent of the total oil seed crop production. Other oil seed crops are produced in minor quantities with sunflower having a production of 55,070 tonnes (22.9%), simsim (23,669t, 9.8%), castor seeds (667t, 0.3%) and Soya beans with (634t, 0.3%) (Table 2.4).



Of the five oil seed crops grown in Tanzania, only groundnuts and simsim are grown in Zanzibar and at a relatively small scale (0.2% of the total oil seed crop planted area).

The total area planted with oil seed crops was 534,710 ha (6.8% of the total area planted). Of the total area planted with oil seed crops, groundnuts occupied 349,042 ha (65.3%), sunflower (21.6%), simsim (12.7%), soya beans (0.3%) and castor seed (less than 0.1%) (Chart 2.40). Almost 100 percent of the planted area with oil seed crops was found on the Mainland (99.9%) (Table 2.4).

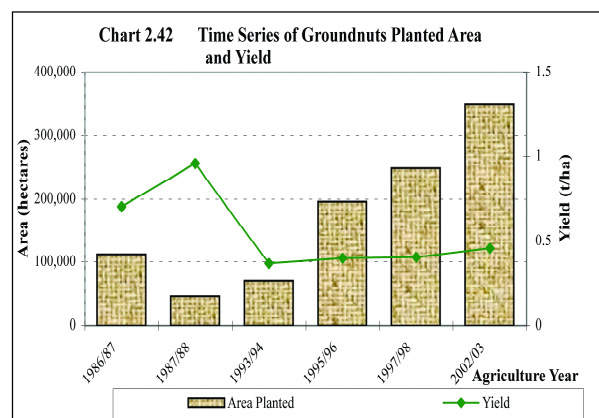
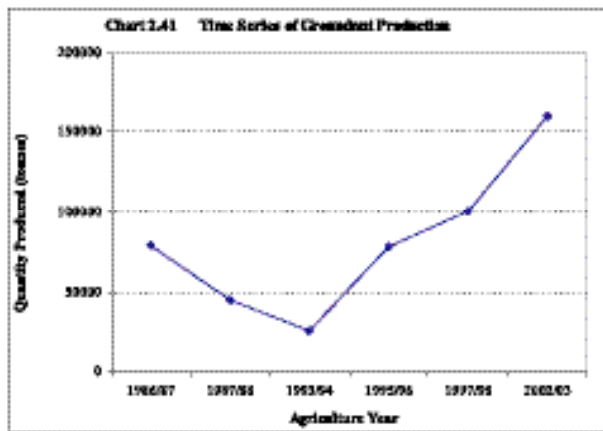
Crop	Season	Mainland			Zanzibar			Total		
		Area Planted (ha)	Quantity Harvested (t)	Yield t/ha	Area Planted (ha)	Quantity Harvested (t)	Yield t/ha	Area Planted (ha)	Quantity Harvested (t)	Yield t/ha
Groundnuts	Short season	38,534	21,227	0.55	277	184	0.66	38,811	21,410	0.55
	Long season	309,805	138,644	0.45	426	203	0.48	310,231	138,847	0.45
Sunflower	Short season	4,004	2,145	0.54	0	0	0.00	4,004	2,145	0.54
	Long season	111,579	52,925	0.47	0	0	0.00	111,579	52,925	0.47
Simsim	Short season	2,910	991	0.34	2	1	0.00	2,911	992	0.34
	Long season	65,104	22,677	0.35	0	0	0.00	65,104	22,677	0.35
Soya Beans	Short season	179	35	0.20	0	0	0.00	179	35	0.20
	Long season	1,640	599	0.37	0	0	0.00	1,640	599	0.37
Castor Seed	Short season	42	294	-	0	0	-	42	294	1.50
	Long season	208	372	0.56	0	0	-	208	372	0.79
Total	Short season	45,669	24,692	X	279	185	X	45,948	24,877	X
	Long season	488,336	215,217	X	426	203	X	488,762	215,420	X
Grand Total		534,005	239,909	X	705	388	X	534,710	240,297	X

The short rainy season is much less important than the long rainy season for oil seeds production. The total area planted with oil seed crops in the short rainy season was 45,948 hectares which represents 8.6 percent of the total area planted with oil seeds.

Over 50 percent of oil seeds are planted in four regions. The largest area is found in Dodoma with 120,211 ha (22.5%), followed by Kilimanjaro with 70,742 ha (13.2%), Arusha with 69,834ha (13.1%) and Singida with 47,556 ha (8.9%).

Groundnuts

The number of households growing groundnuts in Tanzania during the long rainy season was 734,034 (732,624 on the

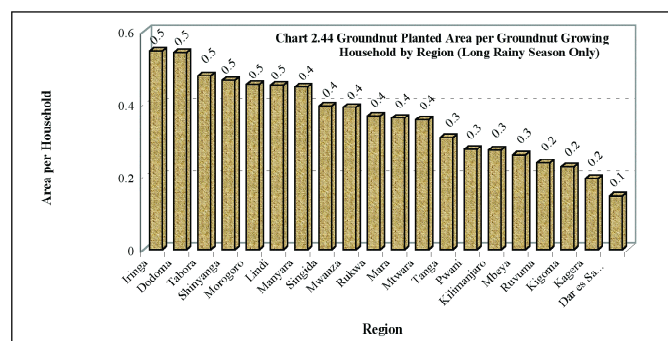
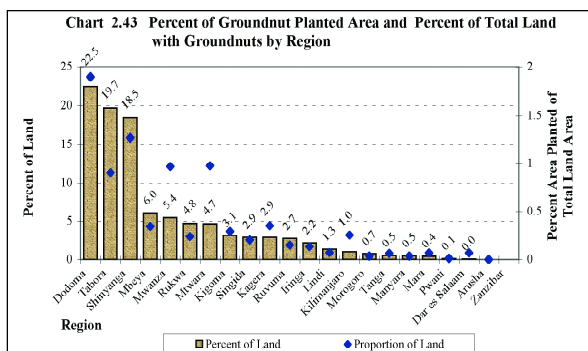


Mainland and 1,410 in Zanzibar) and 141,751 households in the short rainy season (140,848 households on the Mainland and 903 in Zanzibar). This represents 15.4 percent of the total crop growing households in Tanzania in the long rainy season and 3 percent in the short rainy season.

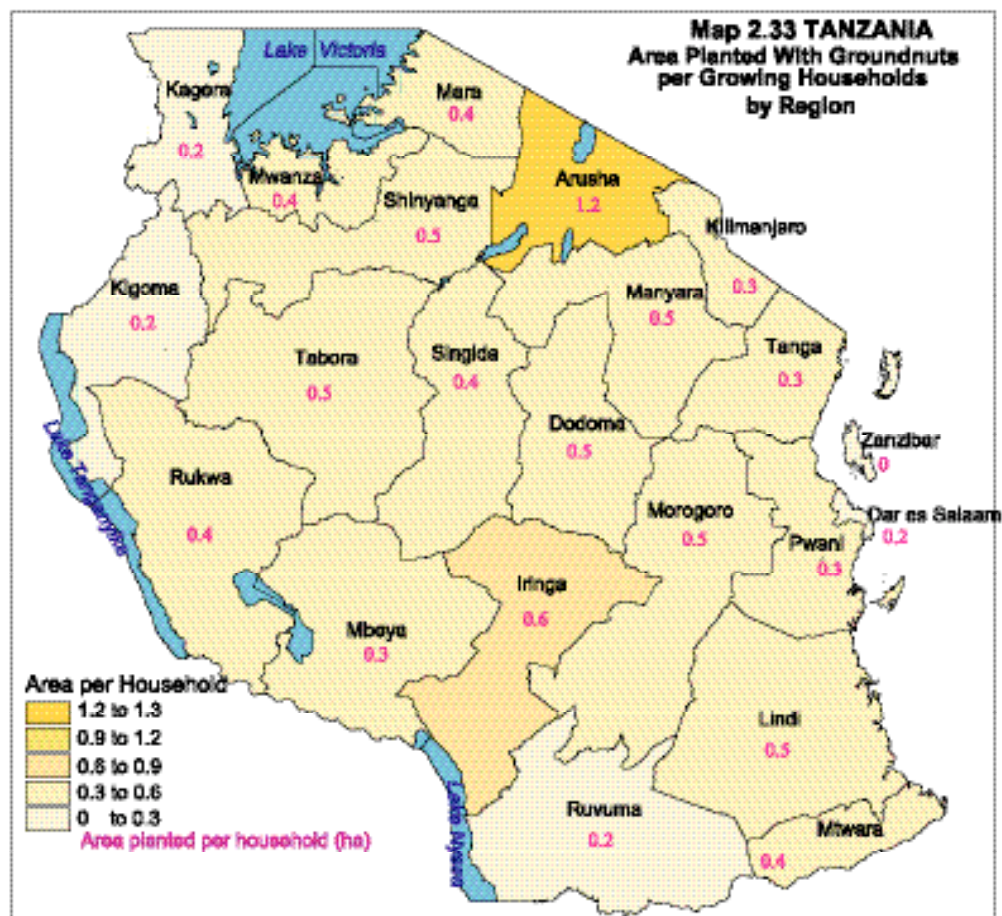
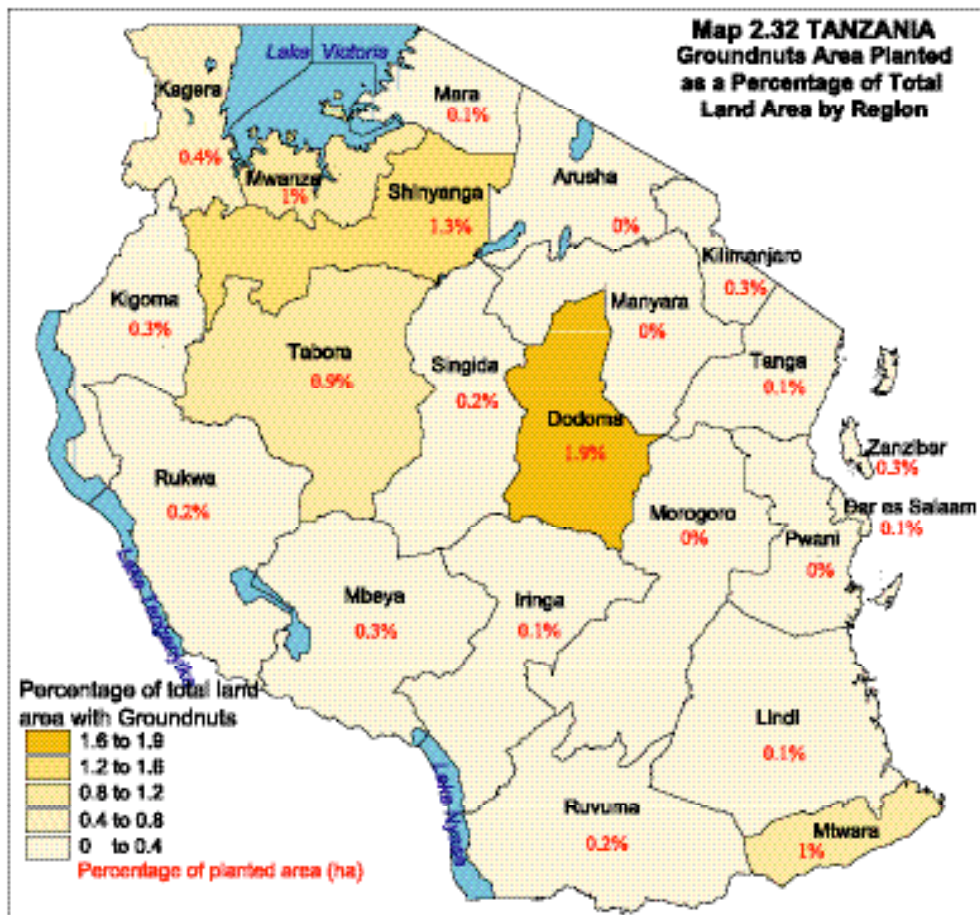
The total production of groundnuts during the census year was 160,258 tonnes. Time series data shows a steady increase in production from 1994 to 2003 from about 25,000 tonnes to 160,000 tonnes which is equivalent to an increase of 15,000 tonnes per year (Chart 2.41).

Charts 2.41 and 2.42 show that whilst groundnuts production has increased since 1994, the yield has remained constant over the same period. However, the planted area of groundnuts has increased approximately four times. This implies that the increase in groundnuts production over the period has been due to an increase in the area under production and not an increase in productivity.

Dodoma region has the largest planted area of groundnuts (78,311 ha, 22.5% of the oilseed planted area), followed by Tabora (68,730 ha, 19.7%) and Shinyanga (64,355 ha, 18.5%) regions. The highest proportion of land with groundnuts was also found in Dodoma, and Shinyanga regions. The lowest proportion of land used for groundnuts is found in Zanzibar,



Arusha, Dar es Salaam, Pwani, Mara, Manyara, Tanga and Morogoro regions (Chart 2.43 Maps 2.31 and 2.32).



The area planted per groundnut growing household is greater in Iringa and Dodoma. The lowest area planted with groundnuts per household is found in Dar es Salaam, Kagera and Kigoma regions. Most of the other regions have a moderate but similar area per groundnut growing household. Arusha has been excluded from the chart due to small numbers. (Chart 2.44 and Map 2.33).

2.3.8 Fruits and Vegetables

The collection of fruit and vegetable production data is difficult due to the small quantities produced per household. Most of the data presented here gives the production of small holders that grow these crops as cash crops and not for household use. Most fruit production is from permanent crops and only water melon is reported as an annual crop in this section.

The total production of fruit and vegetables was

254,739 tonnes (244,345 tonnes on the Mainland and 10,394 in Zanzibar). Tomato production is higher than any other fruit and vegetable crop in Tanzania with a total production of 129,578 tonnes (124,197 tonnes on the Mainland and 5,381 in Zanzibar) and represents 51 percent of the total fruit and vegetable crop production. This is followed by cabbage with 41,495 tonnes (16.3%), onions (36,087t, 14.2%), amaranths (9,195t, 3.6%), chillies (6,433t, 2.5%) and water melon (5390t, 2.1%). The production of other fruit and vegetable crops is relatively small (Chart 2.45 and Table 2.5).

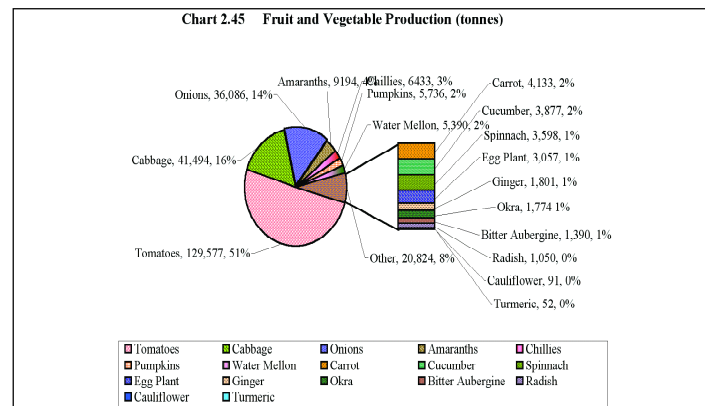
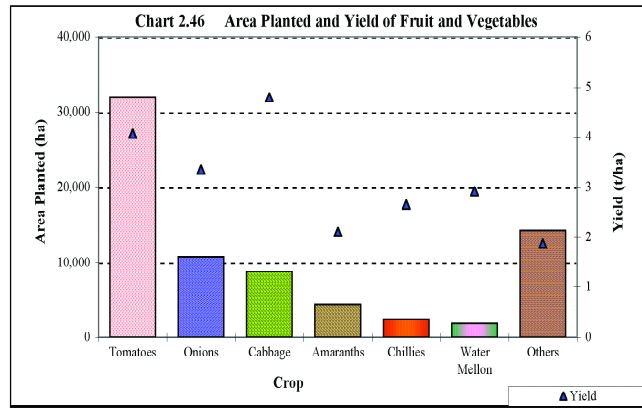


Table 2.5 Area Planted and Quantity Harvested by Season and Type of Fruit and Vegetable Crop

Crop	Season	Mainland			Zanzibar			Total		
		Area Planted (ha)	Quantity Harvested (t)	Yield t/ha	Area Planted (ha)	Quantity Harvested (t)	Yield t/ha	Area Planted (ha)	Quantity Harvested (t)	Yield t/ha
Tomatoes	Short season	9,621	40,329	4.19	1,043	2,197	2.11	10,664	42,525	3.99
	Long season	19,922	83,868	4.21	1,327	3,184	2.40	21,249	87,052	4.10
Cabbage	Short season	2,397	10,226	4.27	3	6	2.27	2,400	10,232	4.26
	Long season	6,278	31,254	4.98	1	9	7.13	6,280	31,263	4.98
Onions	Short season	2,723	10,761	3.95	1	1	0.62	2,725	10,762	3.95
	Long season	8,072	25,325	3.14	5	0	0.00	8,078	25,325	3.14
Amaranths	Short season	1,175	3,743	3.19	227	590	2.60	1,402	4,333	3.09
	Long season	2,795	4,576	1.64	180	285	1.59	2,975	4,862	1.63
Chillies	Short season	1,107	3,379	3.05	62	25	0.40	1,169	3,403	2.91
	Long season	1,195	2,999	2.48	61	61	1.00	1,256	3,030	2.41
Water Melon	Short season	969	3,071	3.17	29	45	1.57	998	3,116	3.12
	Long season	833	2,241	2.69	12	33	2.85	844	2,274	2.69
Others	Short season	4,099	8,828		934	1,960		5,033	10,788	
	Long season	8,299	13,775		888	1,999		9,188	15,774	
Total	Short season	22,091	80,337		2,299	4,823		24,390	85,160	
	Long season	47,395	164,008		2,474	5,571		49,869	169,579	
Grand Total		69,486	244,345		4,773	10,394		74,259	254,739	

Note: The "Other" category include okra, radish, turmeric, bitter aubergine, garlic, ginger, spinach, carrots, pumpkin, cucumber, egg plant and cauliflower.

The area planted with tomatoes is much larger than that of other fruit and vegetable crops (43% of the area planted with fruit and vegetables) or 0.41% of the total area planted with annual crops, followed by onions (14.5%), cabbage (11.7%) and amaranths (5.9%) (Chart 2.46). More than 95 percent of all fruit and vegetables are grown on the Mainland.

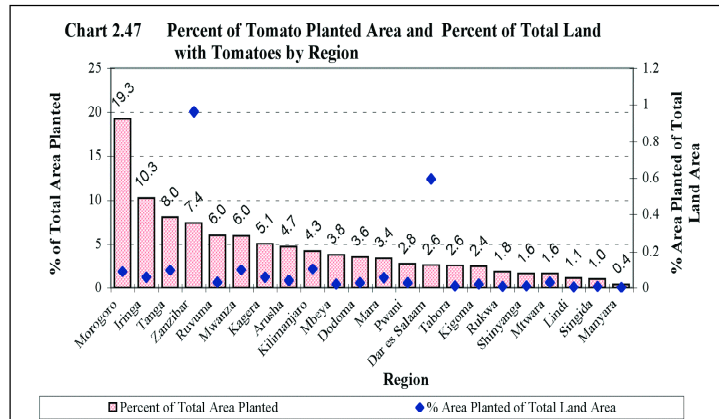


Most fruit and vegetable production takes place in the long rainy season with a planted area of 49,869 ha (67%) compared to 24,390 ha in the short rainy season. For cabbage, amaranths and onions around 70 percent of the planted area was in the long rainy season. Tomatoes are normally grown during the short rainy season, however the planted area of tomatoes during the census year was much more in the long rainy season (70% of the total planted area). It is thought that this was due to the poor rainfall in certain regions which was nevertheless favourable for tomato production (Table 2.5). Reliable historical data for time series analysis of fruit and vegetables is not available.

Tomatoes

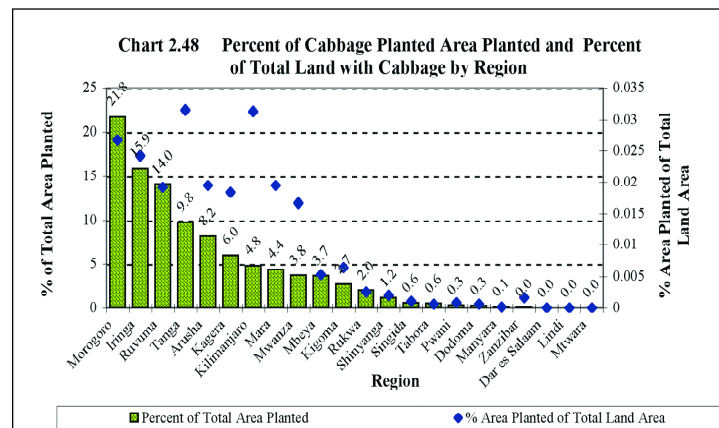
The number of households growing tomatoes in Tanzania during the long rainy season was 97,812 (91,966 on the Mainland and 5,846 in Zanzibar) and 47,581 households in the short rainy season (42,697 households on the Mainland and 4,884 in Zanzibar). This represents 2 percent of the total crop growing households in Tanzania in the long rainy season and 1 percent in the short rainy season.

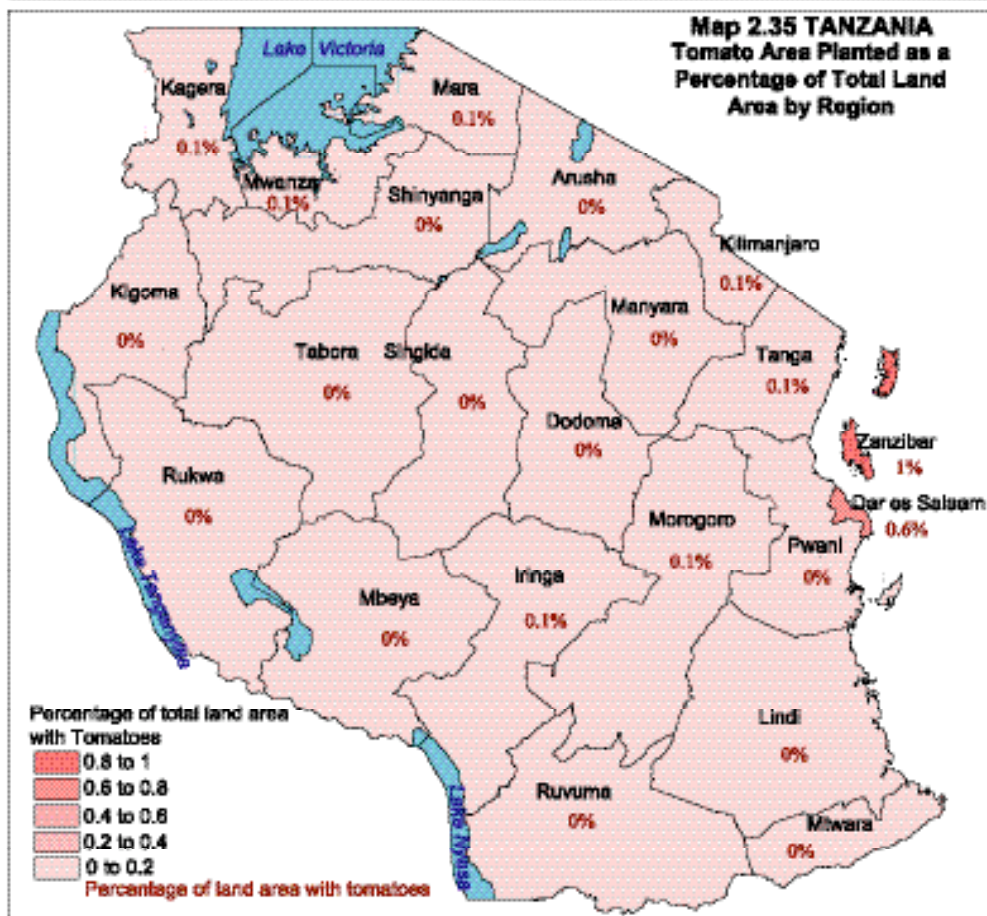
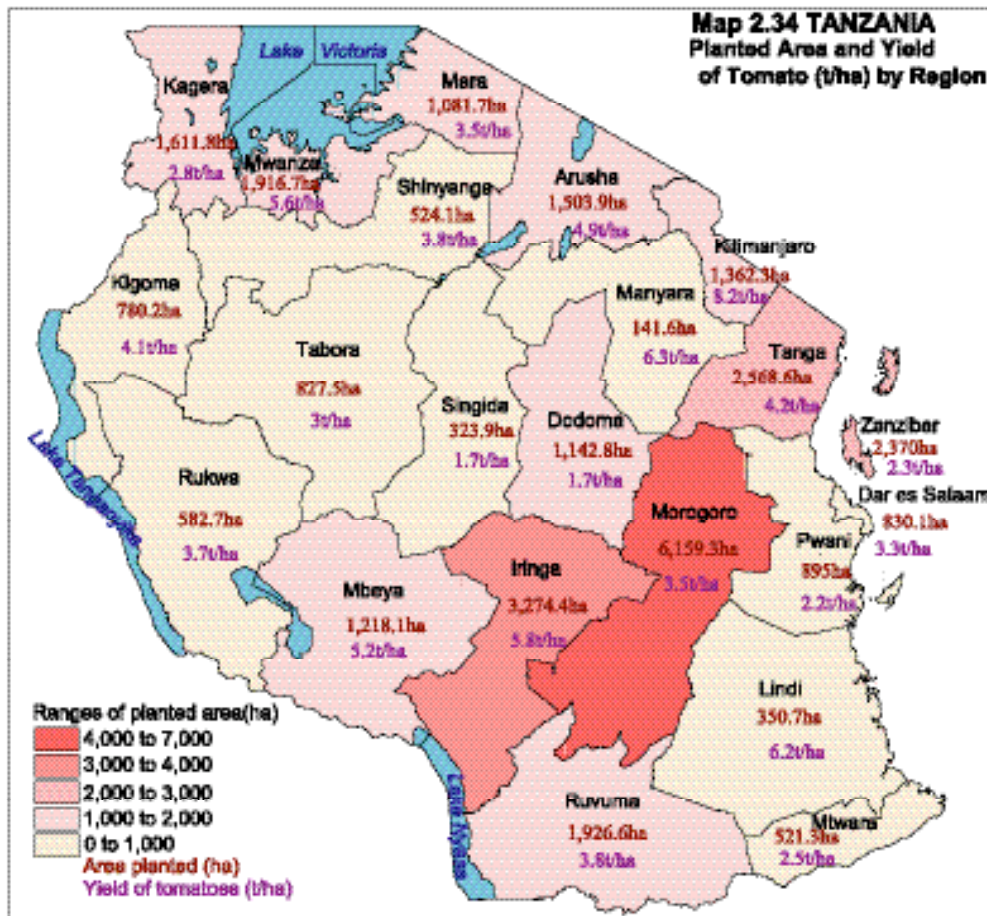
Morogoro region has the largest planted area of tomatoes (6,159 ha, 19.3% of tomato planted area), followed by Iringa (3,274 ha, 10.3%), Tanga (2,569 ha, 8.0%) and Zanzibar (2,370 ha, 7.4%) regions. The highest percentage of land with tomatoes was found in Zanzibar, followed by Dar es Salaam region. Most regions have a low percentage of land used for tomato production (Chart 2.47 and Maps 2.34 and 2.35).

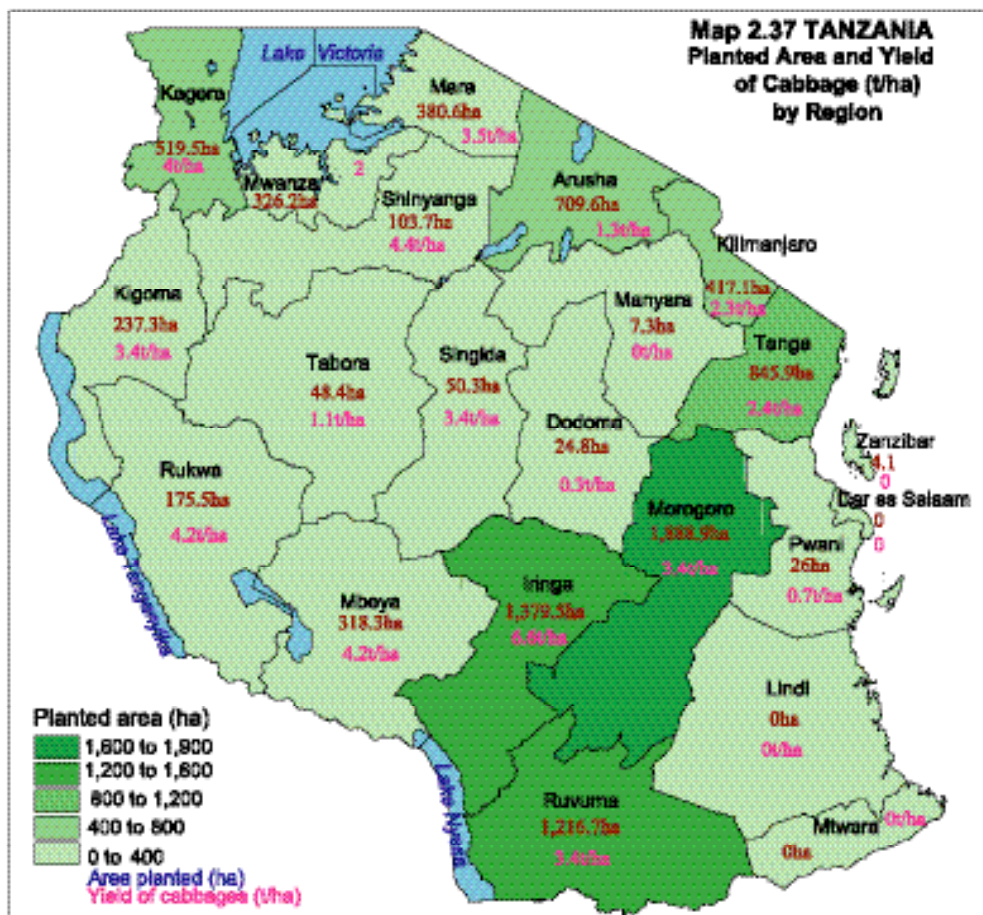
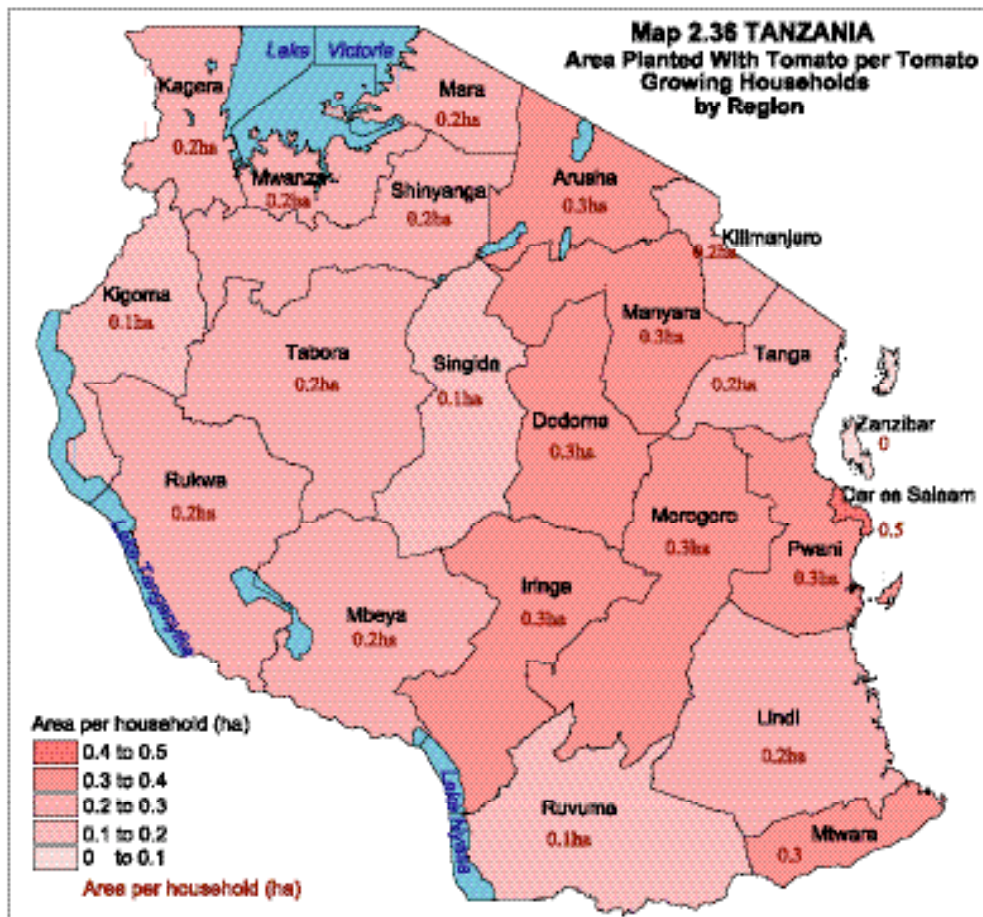


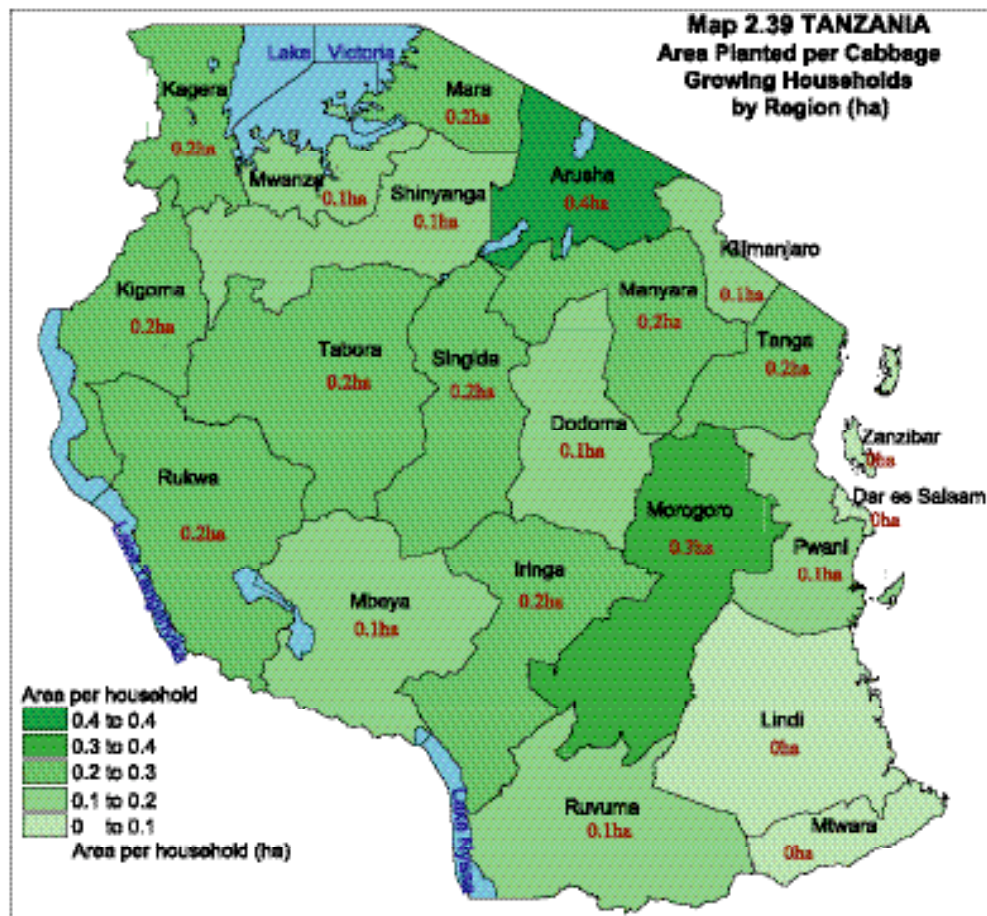
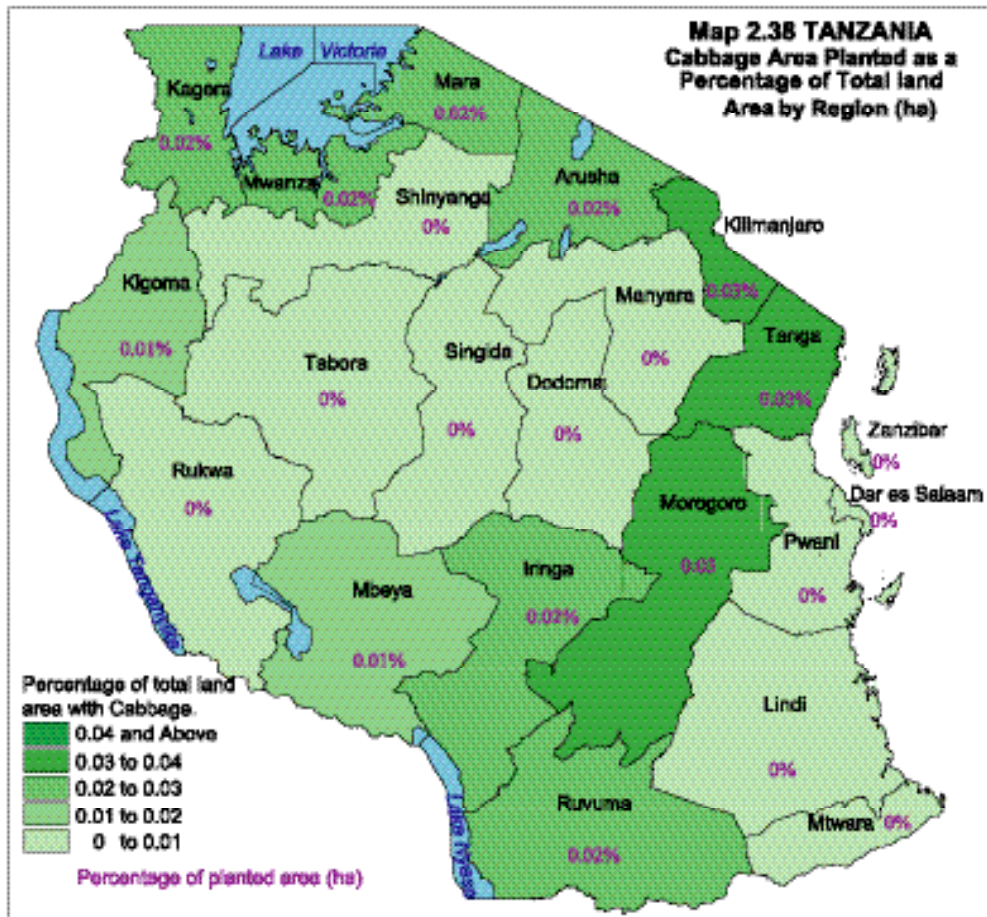
Cabbage

The number of households growing cabbage in Tanzania during the long rainy season was 37,772 households (37,748 households on the Mainland and 24 in Zanzibar), and 11,829 in the short rainy season (11,787 households on the Mainland and 42 in Zanzibar). This represents 0.8 percent of the total crop growing households in Tanzania in the long rainy season and 0.2 percent in the short rainy season.





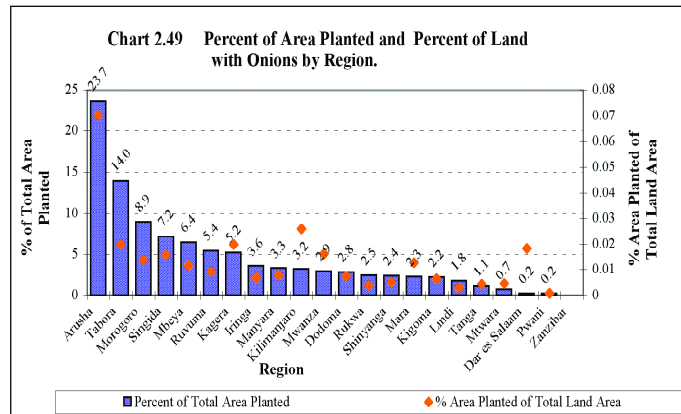




Morogoro region has the largest planted area of cabbage (1,889 ha, 21.8% of total cabbage), followed by Iringa (1,380 ha, 15.9%), Ruvuma (1,217 ha, 14%), Tanga (846 ha, 9.8%) and Arusha (710 ha, 8.2%) regions. The highest percentage of land with cabbage was found in Tanga and Kilimanjaro regions. Other regions with high proportion of land planted with cabbage are Morogoo, Iringa, Ruvuma, Arusha and Kagera, Mara and Mwanza. About 50 percent of the regions have very small/virtually no land planted with cabbage (Chart 2.48 and Maps 2.37, 2.38 and 2.39).

Onions

The number of households growing onions in Tanzania during the long rainy season was 29,646 households (29,619 on the Mainland and 27 in Zanzibar), and 10,318 in the short rainy season (10,301 on the Mainland and 17 in Zanzibar). This represents 0.6 percent of the total crop growing households in Tanzania in the long rainy season and 0.2 percent in the short rainy season.



Arusha region has the largest planted area of onions (2,558 ha, 23.7% of the total onion planted area), followed by Tabora (1,507 ha, 14%) and Morogoro (965 ha, 8.9) regions. The highest percentage of land with onions was found in Arusha. Zanzibar, Pwani and Dar es Salaam regions have virtually no planted area with onions (Chart 2.49, Maps 2.40 and 2.41).

2.3.9 Other Annual Crop/Cash Crop Production

Most of the other annual crops can be defined as cash crops, however it is difficult to distinguish between cash crops and other crops given that many of the food crops are also used for generating income. During the 2002/03 agriculture year an area of 398,456 ha was planted with other crops and of these, cotton was the most important followed by tobacco, seaweed, pyrethrum and jute (Chart .2.50 and Table 2.6).

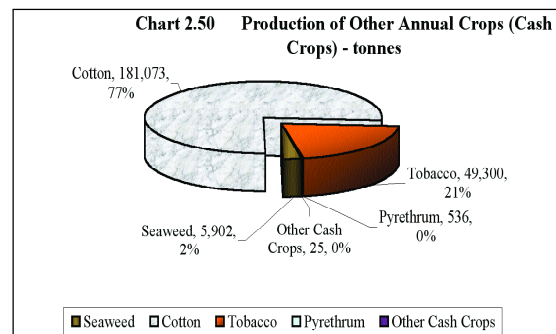
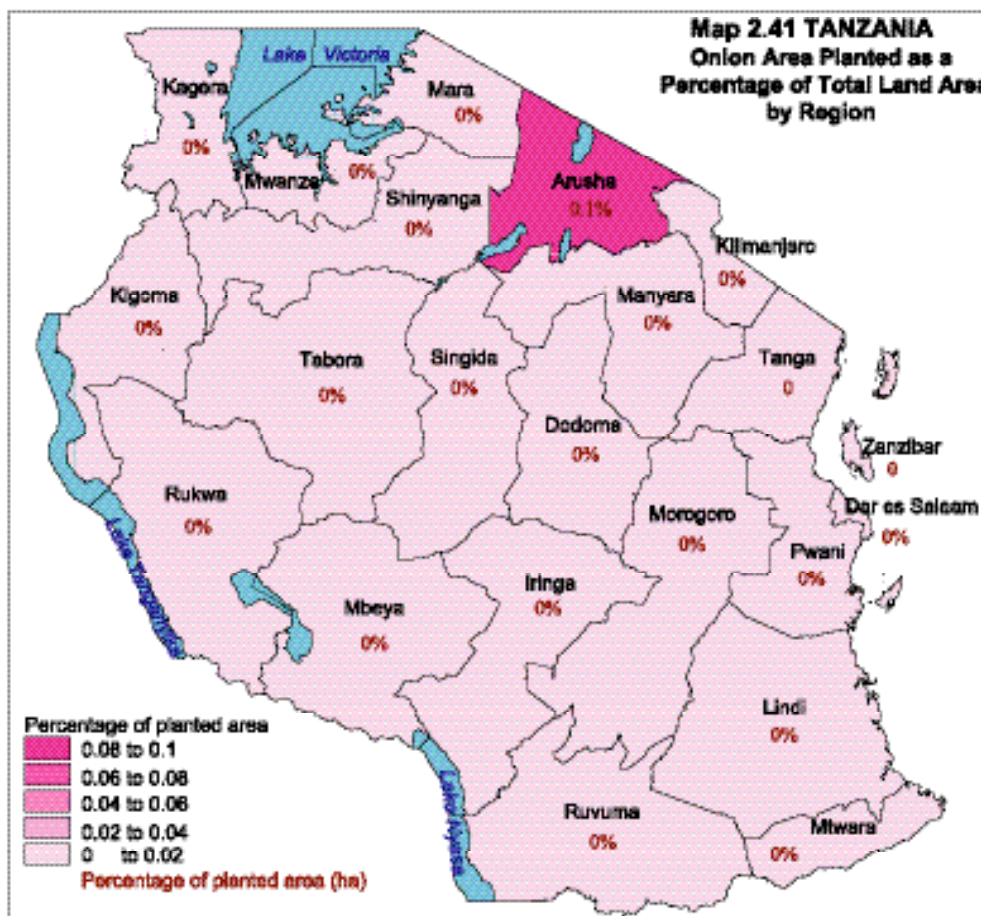
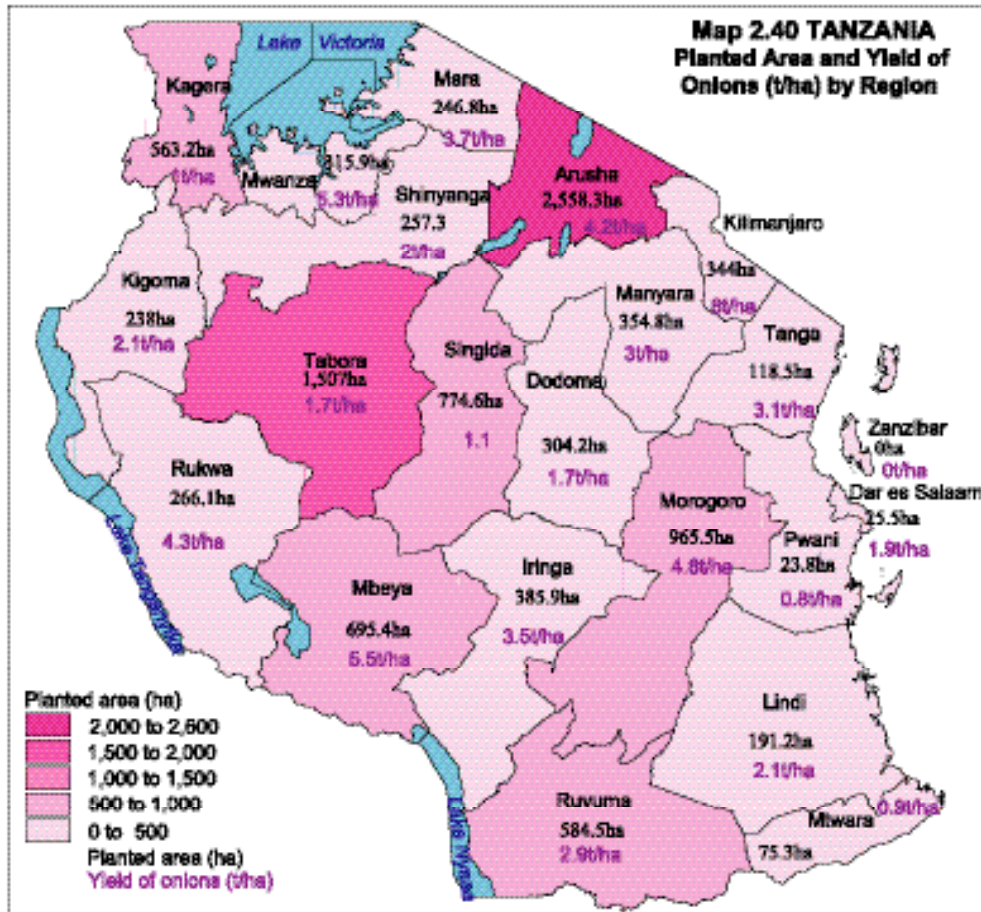
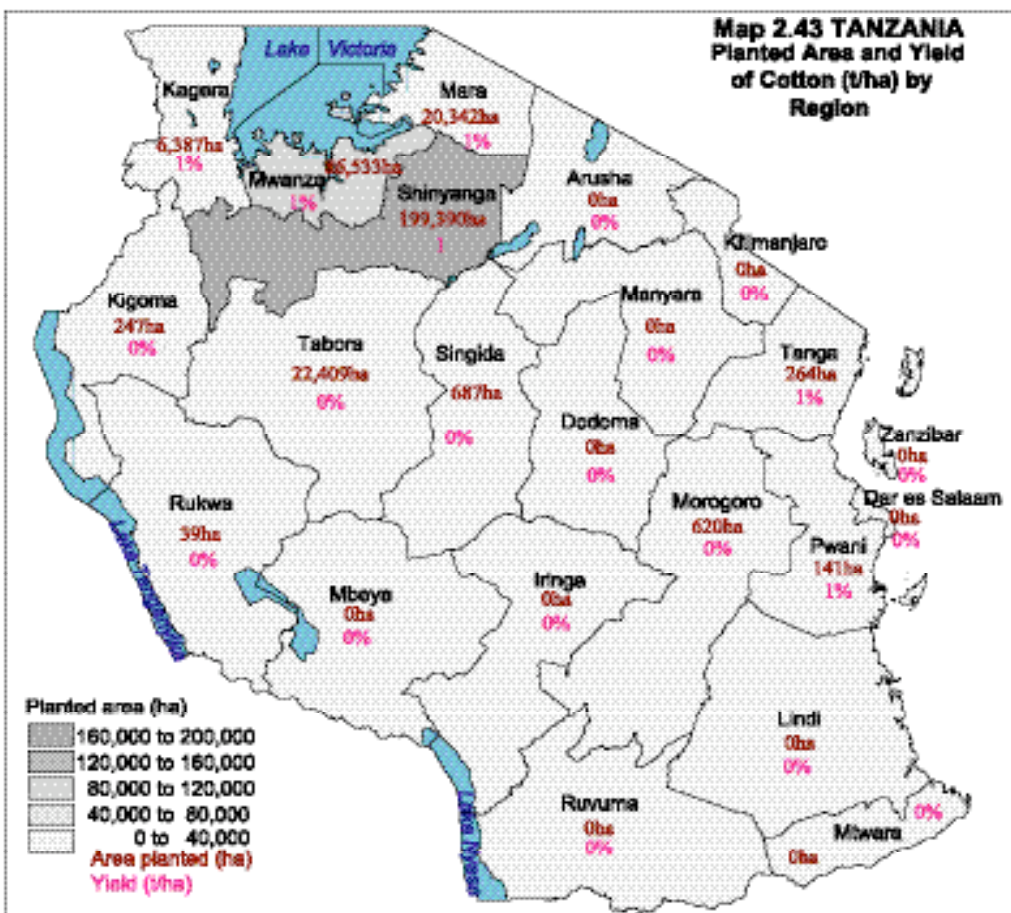
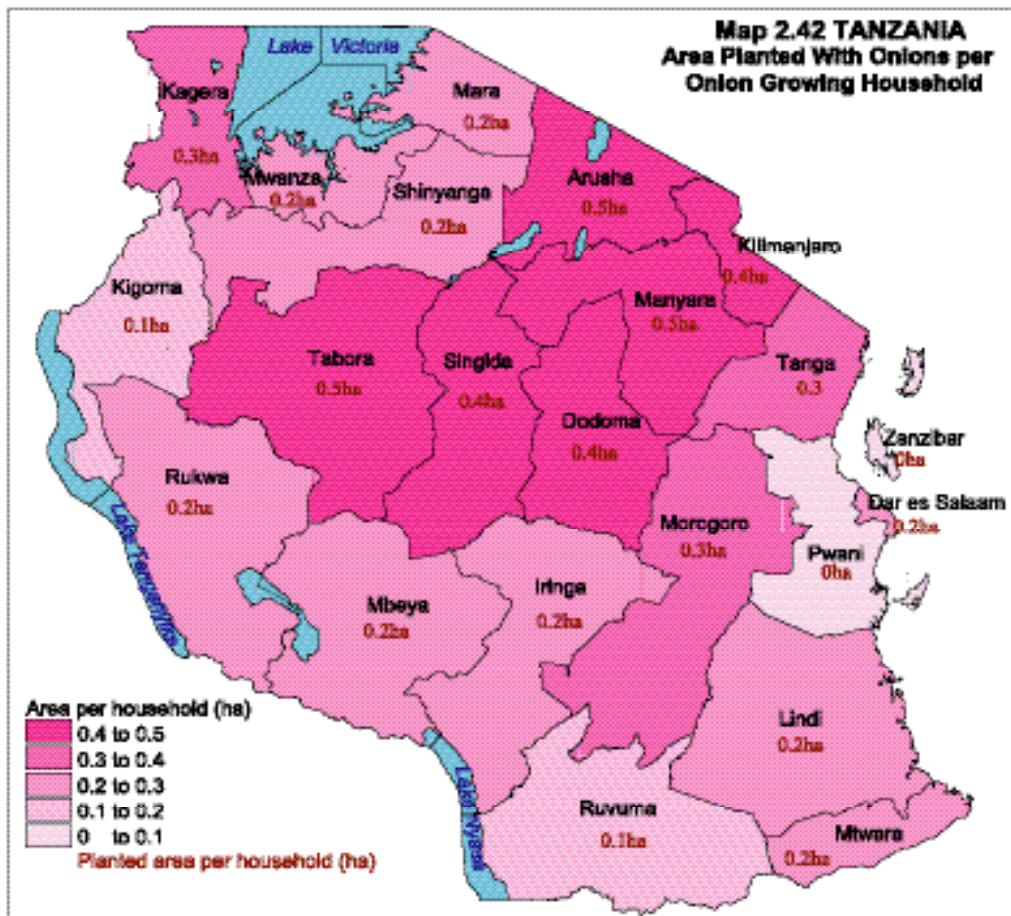


Table 2.6 Area Planted and Quantity Harvested by Season and Type of Other Crops (Cash Crops)

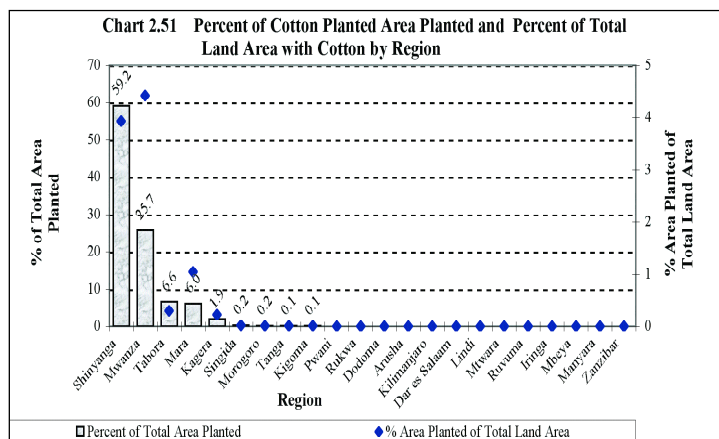
Crop	Season	Mainland			Zanzibar			Total		
		Area Planted (ha)	Quantity Harvested (t)	Yield t/ha	Area Planted (ha)	Quantity Harvested (t)	Yield t/ha	Area Planted (ha)	Quantity Harvested (t)	Yield t/ha
Seaweed	Short Season	173	187	1.08	1,377	2,698	1.96	1,550	2,885	1.86
	Long season	183	188	1.02	1,202	2,830	2.35	1,386	3,018	2.18
Cotton	Short season	110,154	66,383	0.60	0	0	0.00	110,154	66,383	0.60
	Long season	226,905	114,690	0.51	0	0	0.00	226,905	114,690	0.51
Tobacco	Short season	2,820	1,511	0.54	1	1	0.76	2,821	1,512	0.54
	Long season	54,586	47,770	0.88	31	18	0.58	54,617	47,788	0.87
Pyrethrum	Short season	280	218	0.78	0	0	0.00	280	218	0.78
	Long season	711	318	0.45	0	0	0.00	711	318	0.45
Other Cash Crops	Short season	0	0		0	0		0	0	
	Long season	32	25		0	0		32	25	
Total	Short season	113,427	68,298		1,378	2,699		114,805	70,997	
	Long season	282,418	162,991		1,233	2,848		283,651	165,839	
Grand Total		395,845	231,289		2,611	5,547		398,456	236,836	





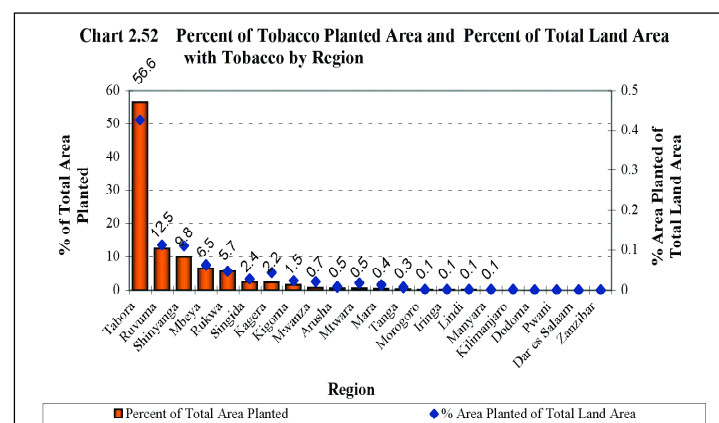
Cotton

The quantity of cotton produced was 181,073 tonnes with 37 percent (66,383 t) of this being produced in the short rainy season. The total planted area for cotton was 337,059 ha and it was grown in only five regions with Shinyanga having the largest area planted (59.2%), followed by Mwanza (25.7%), Tabora (6.6%), Mara (6%) and a small amount in Kagera (Chart 2.51 and Map 2.43, 2.44 and 2.45).



Tobacco

The quantity of tobacco produced was 49,300 tonnes. Tobacco had a planted area of 57,438 ha, most of which was planted in the long rainy season (54,617, 95%). Tobacco production is concentrated in 5 regions with Tabora having the largest percent of the area planted with this crop (56.6%), followed by Ruvuma (12.5%), Shinyanga (9.8%), Mbeya (6.5%) and Rukwa (5.7%). It is not grown in 50% of the regions of Tanzania (Chart 2.52, Maps 2.46, 2.47 and 2.48).

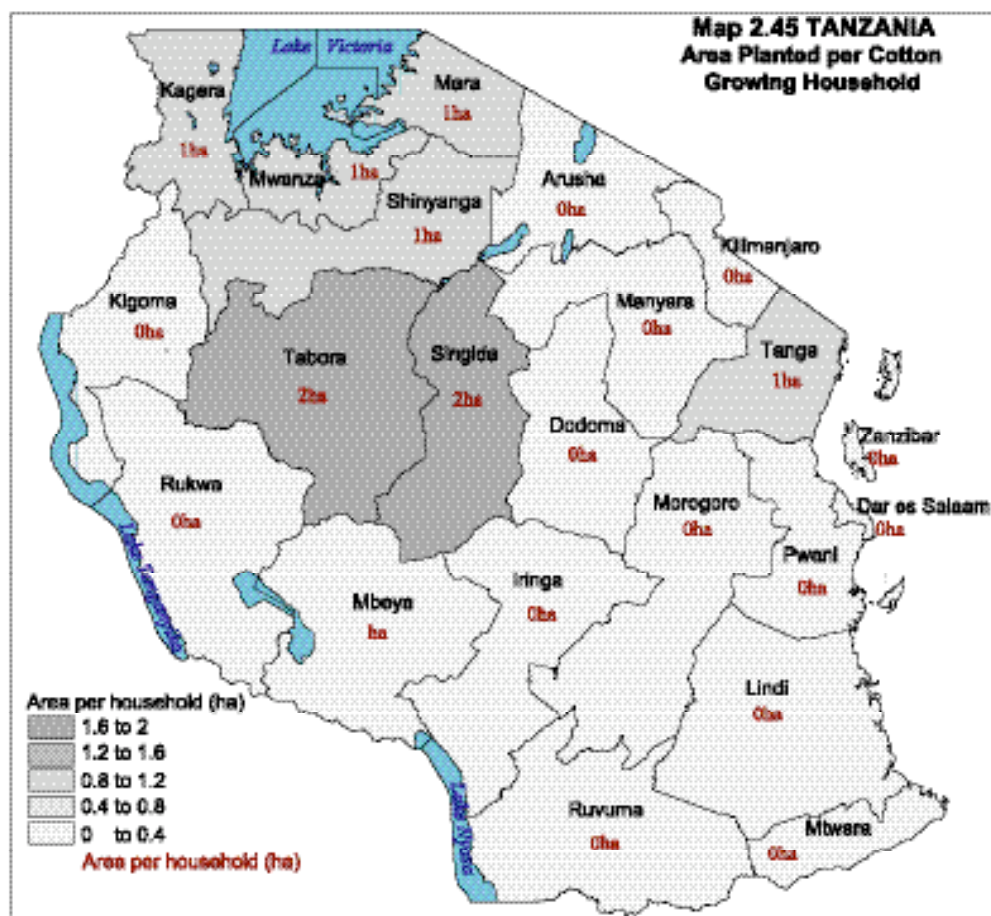
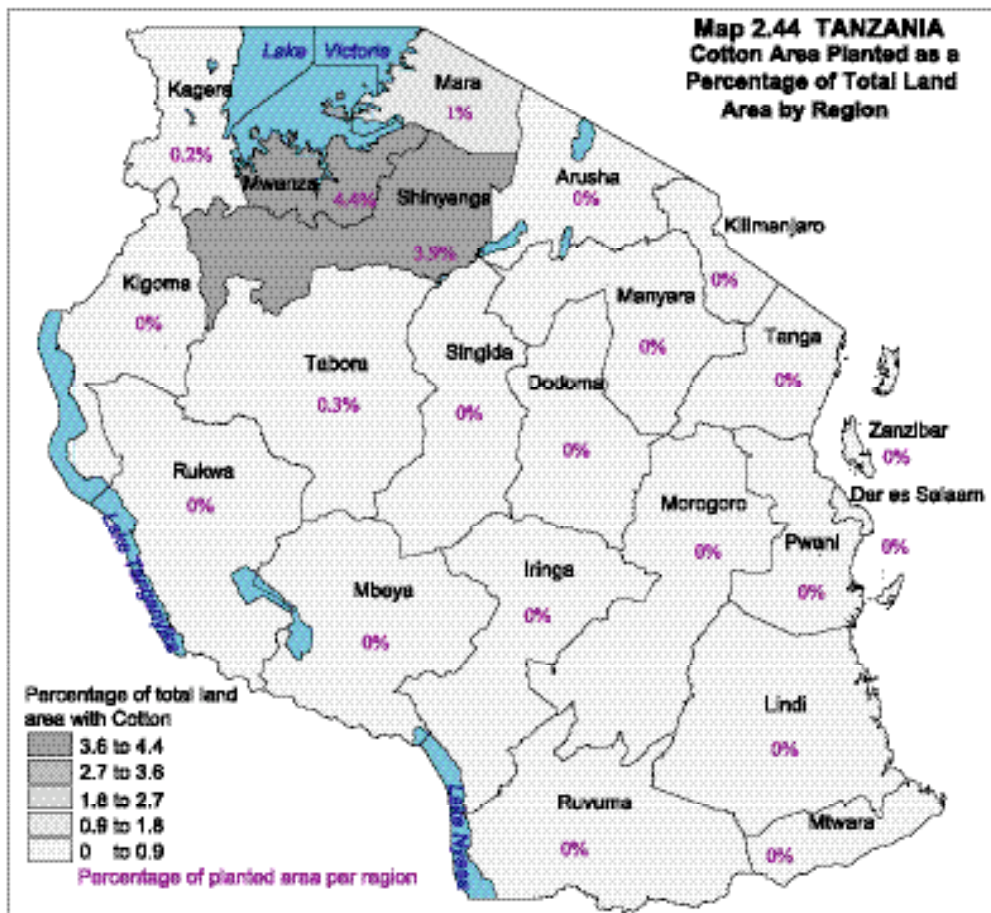


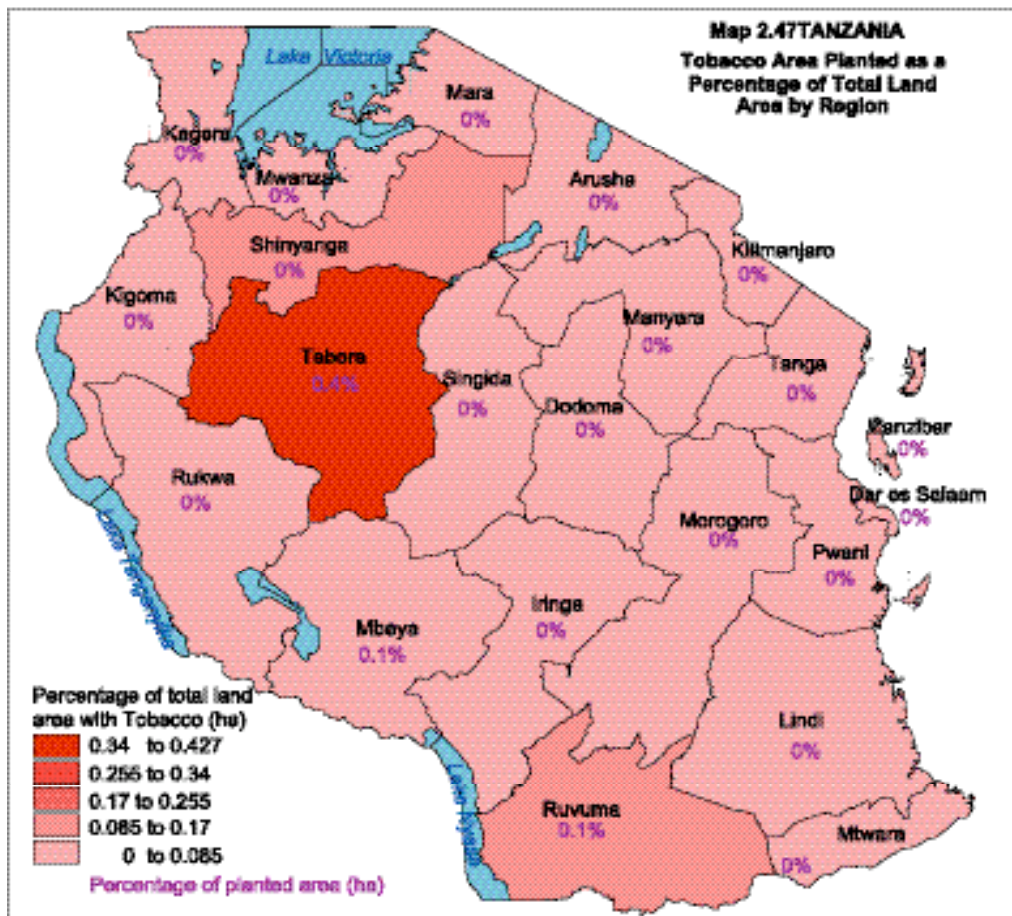
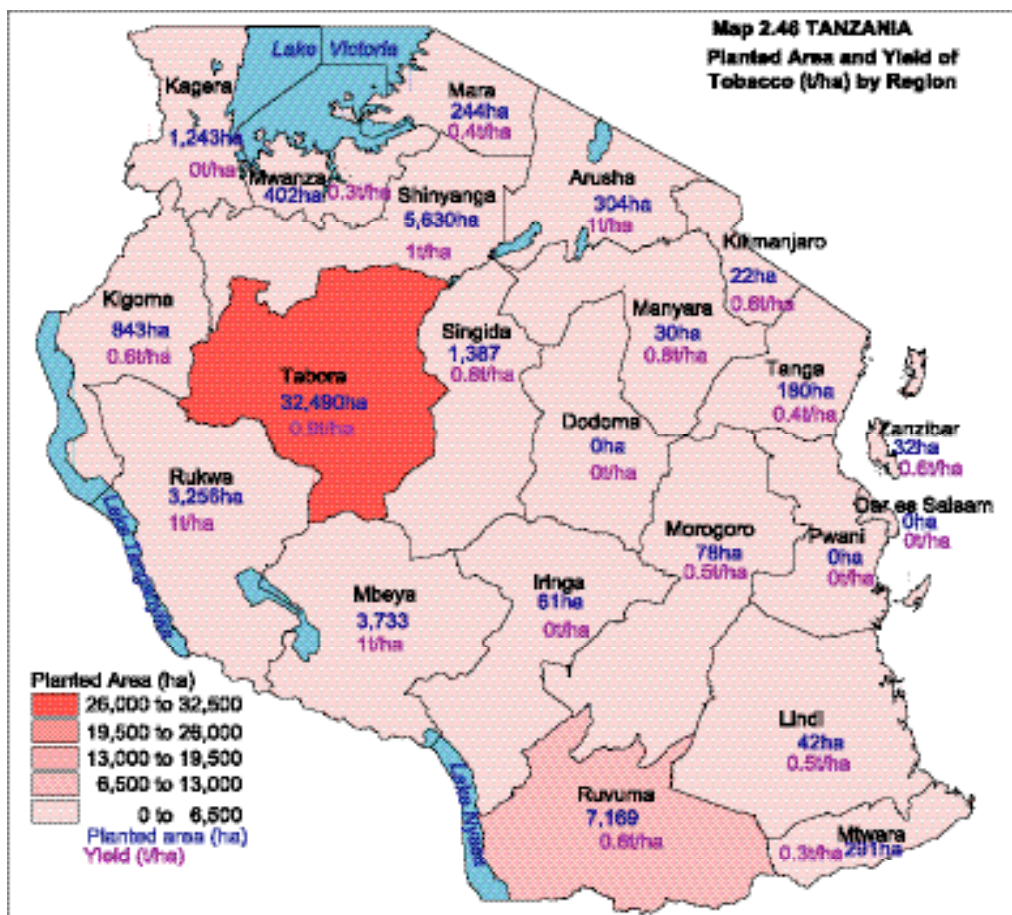
2.4 Perennial/Permanent Crops

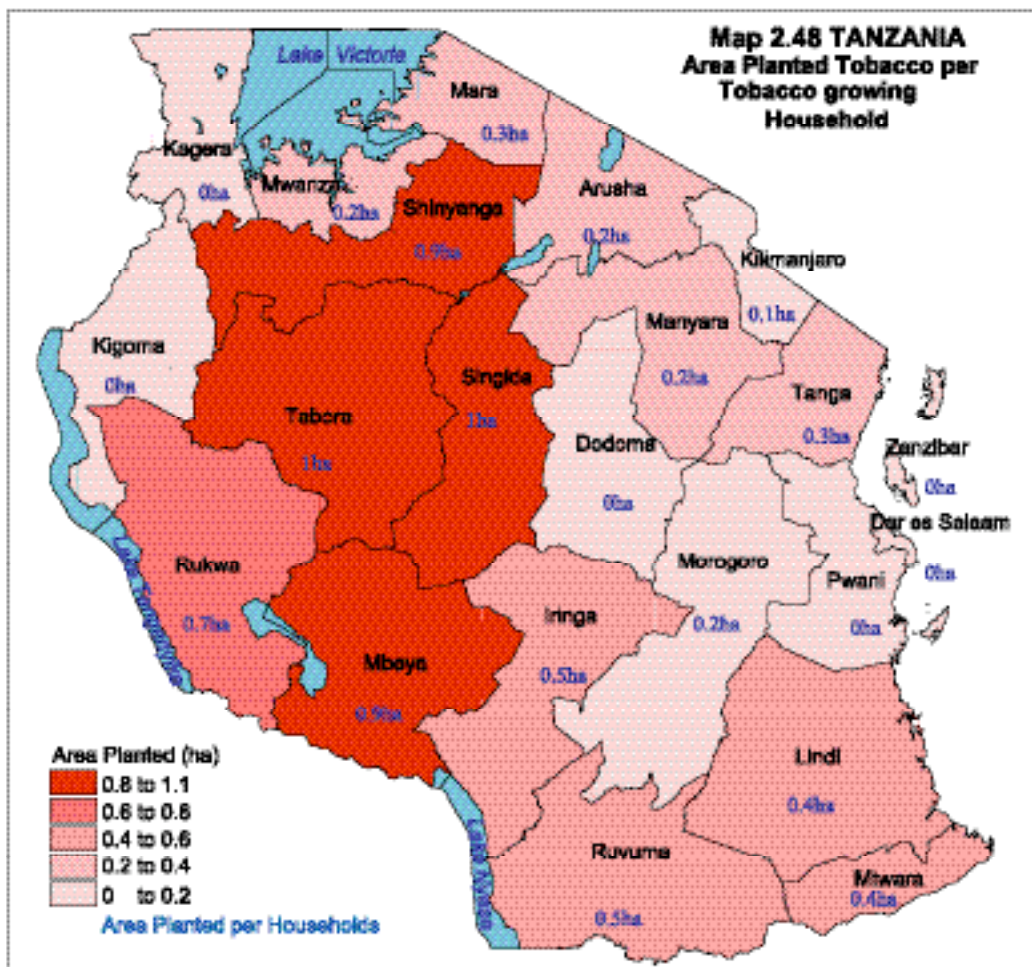
Perennial or permanent crops refer to crops that normally take over a year to mature and once mature can be harvest for a number of years. For most crops it is easy to determine if they are annual or permanent. However, for crops like cassava and bananas the distinction is not so clear. Cassava has varieties that mature within a year and produces only one harvest, whilst other varieties survive for more than one year and produces several harvests. In this census cassava was treated as an annual crop. Bananas normally take less than a year to mature and produce a harvest and survive for more than one year. Bananas are treated as permanent crops in the census. In this report the agriculture census results are presented for the most important permanent crops in terms of production, yield and area planted and they occupy 92 percent of the total area planted to permanent crops. Previous censuses and surveys do not provide sufficient details on these variables for permanent crops, therefore no time series analysis has been made in this section.

The number of smallholder households growing permanent crops is 2,456,101 (2,364,277 households on the Mainland and 91,824 in Zanzibar).

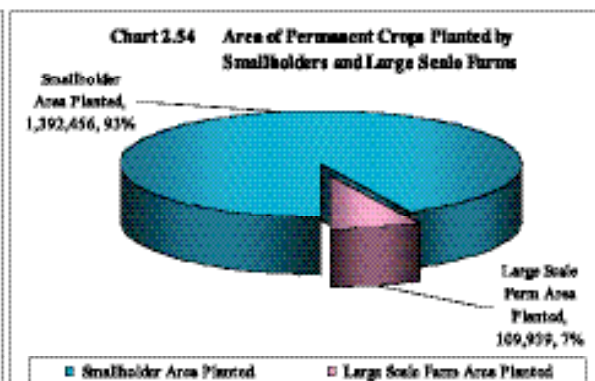
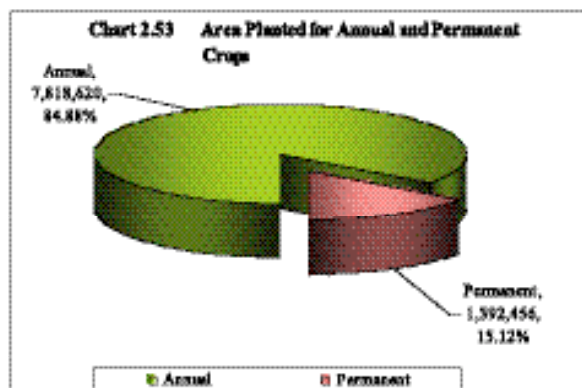
In terms of planted area, permanent crops are almost six times less important than annual crops for smallholders in Tanzania. However, the area planted with annual crops is not the actual physical land area as the annual planted area can include land which has been planted more than once during the year, whilst the planted area for permanent crops is the same as physical planted land area. Therefore, the percentage of land area planted with permanent crops is higher than indicated in Chart 2.53.







Permanent crop production is dominated by small holders (1,392,456 ha, 93%; 1,360,309 ha on the Mainland and 32,147 in Zanzibar) with large scale farms accounting for only 109,939 ha (7%) giving a total permanent crop planted area of 1,502,395 ha (Chart 2.54). This is not the case for all permanent crops with large scale farms having 97.9 percent of the



total area planted with Wattle, 85.7 percent with sisal, and 58.3 percent planted with tea.

Cashew nuts have a higher smallholder planted area (414,520 ha, 30% of the total area of permanent crops) than other permanent crops which is closely followed by bananas (319,676 ha, 23%). Taking into consideration the expected amount of old non productive cashew nut trees it is possible that bananas may be the most important permanent crop for smallholders. This is also supported by the higher harvested area for bananas. Coffee has the third highest planted area (180,649 ha, 13%) closely followed by mango (99,176 ha, 7%), pigeon peas (90,065 ha, 7%) and coconuts (68,313 ha, 5%) (Chart 2.55).

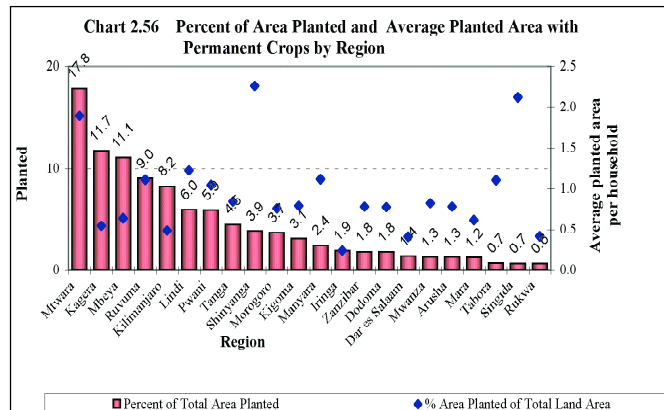
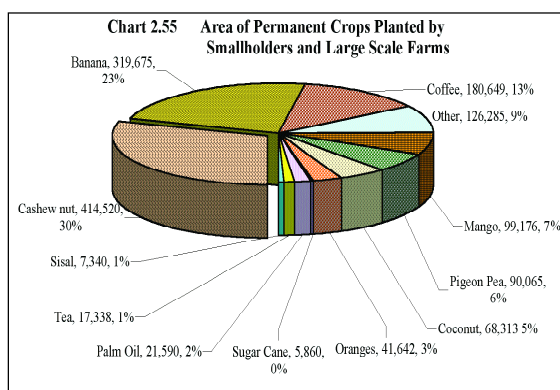


Chart 2.56 shows the combined planted area for main permanent crops only (refer to the crops in Chart 2.55) and the percentages in the following paragraph are based on the total planted area of these main crops.

Mtwara region has the largest area under smallholder permanent crops (247,188, 17.8%). This is followed by Kagera (162,395, 11.7%), Mbeya (153,578, 11.1%), Ruvuma (124,910, 9.0%), and Kilimanjaro (114,253, 8.2%). In terms of area of permanent crops planted per household Shinyanga has the largest area followed by Mtwara and Singida. However, in terms of area of permanent crops planted expressed as a percentage of the total land area per region Mtwara has the highest (15%) followed by Dar es Salaam (13%), Zanzibar (10%) and Kilimanjaro (9%).

Zanzibar's contribution to the total area planted with permanent crops represents 1.8 percent (Chart 2.56), but the area planted with cloves represents 84.7 percent of the total area planted with cloves in the country.

Table 2.7 presents the production information on some of the major permanent crops grown by smallholders in Tanzania. For all permanent crops, except bananas, the harvest area is used to calculate yield as it normally takes 3 or more years after planting before the crop starts producing. With bananas and annual crops the planted area is used to calculate yield. Production and yield data for each of the major crops is provided in the following sections.

Table 2.7 Area Planted, Quantity Harvested and Yield by Season and Type of Permanent Crop

Crop	Area Planted (ha)	Area Harvested (ha)	Quantity Harvested (t)	Yield t/ha
Cashew nut	414,520	258,337	183,419	0.7
Bananas	319,676	319,676	2,205,673	6.9
Coffee	180,649	136,894	61,602	0.4
Mango	99,176	31,888	336,028	10.5
Pigeon Pea	90,065	59,454	26,615	0.4
Cocunut	68,313	38,122	102,458	2.7
Oranges	41,643	21,707	186,695	8.6
Sugar cane	21,591	20,567	404,694	19.7
Palm Oil	17,338	15,757	51,109	3.2
Other	139,485			
Total	1,392,456	864,672		

Table 2.8 Area Planted, Quantity Harvested and Yield by Type of Permanent Crop

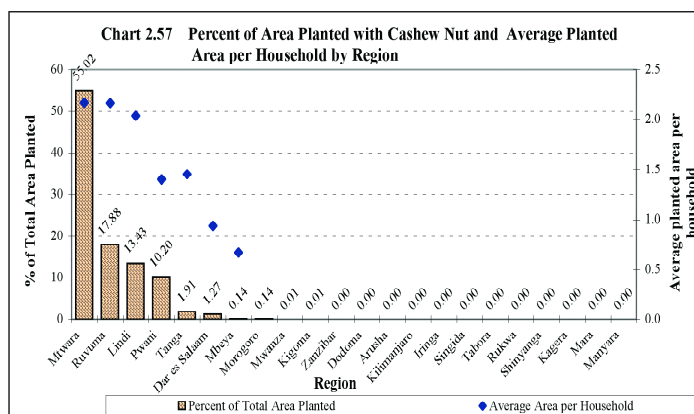
Crop	Mainland only		Zanzibar		Total Small Scale		Large Scale Farm		Total Planted Area for Tanzania
	Number of households	Total area planted	Number of households	Total area planted	Number of households	Total area planted	Households/farms	Total area planted	
Cashew nut	195,435	414,518	28	134	207,287	414,518	65	6,589	421,108
Bananas	527,305	306,103	56,917	13,573	576,241	319,676	141	1,001	320,677
Coffee	339,208	180,649	0	0	315,181	180,649	164	12,749	193,398
Cocunut	68,220	61,563	22,012	6,750	82,700	68,313	93	5,181	73,494
Mango	189,841	97,442	12,819	1,734	92,479	99,176	110	1,638	100,814
Oranges	83,442	39,930	10,384	1,712	53,697	41,643	122	1,330	42,972
Palm Oil	31,955	17,338	0	0	27,934	17,338	40	2,809	20,147
Sisal	1,472	5,861	0	0	458	5,861	40	35,031	40,892
Sugar Cane	172,202	21,262	975	329	34,142	21,591	57	17,351	38,942
Tea	3,563	7,340	0	0	14,781	7,340	34	10,282	17,622
Pigeon pea	103,513	89,274	1,000	792	140,014	90,065	8	256	90,321
Other		119,028		7,257		106,014		15,723	142,008
Total		1,360,309		32,147		1,392,456		109,939	1,502,395

2.4.1 Cashew Nuts

The total production of cashew nuts by smallholders was 183,419 tonnes representing over 99 percent of cashew nut production in the country. In terms of area planted, cashew nut is the most important permanent crop grown by smallholders in Tanzania. It is grown by 269,500 households (5.5% of the total crop growing households). The average area planted with cashew nuts per cashew nut growing household is relatively high at around 1.4 ha and the average yield obtained by smallholders is 0.71 t/ha from a harvest area of 258,337 ha. Of the total planted area of cashew nuts in the country only 1% percent is by large scale farms.

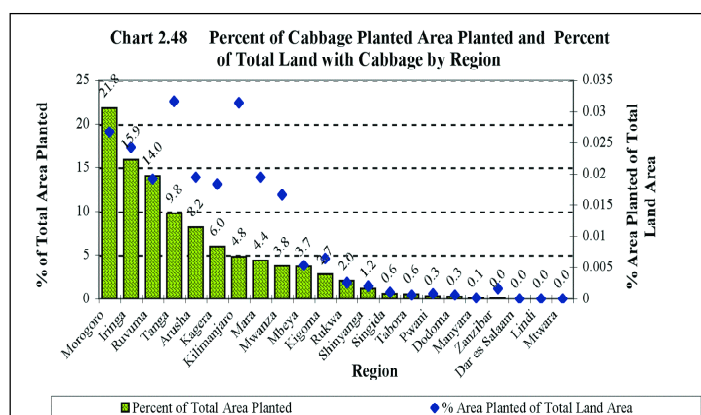
Cashew nuts are only produced in the dryer areas of the five coastal regions (Lindi, Pwani, Tanga, Dar es Salaam and Mtwara) and the southern region of Ruvuma. Mtwara has the largest planted area (228,078 ha, 55%).

Ruvuma, the region with the second largest planted area of cashew nuts has about one third of that of Mtwara (74,124 ha, 18%). This is followed by Lindi (55,683 ha, 13%) and Pwani (42,263, 10%). Tanga and Dar es Salaam have planted areas that are less than 10 percent of the total (Chart 2.57). The rest of the regions have very small quantities of cashew nuts or do not produce any at all (Chart 2.57 and Maps 2.49, 2.50 and 2.51)



2.4.2 Bananas

The total production of bananas by smallholders was 2,205,673 tonnes. It is grown by 576,241 households which represent 12 percent of the total crop growing households and in terms of area planted, bananas are the second most important permanent crop grown by smallholders in Tanzania. The average area planted with bananas per banana growing household was 0.6 ha/household and the average yield obtained by smallholders was 6.9t/ha from a harvest area of 319,676 ha.

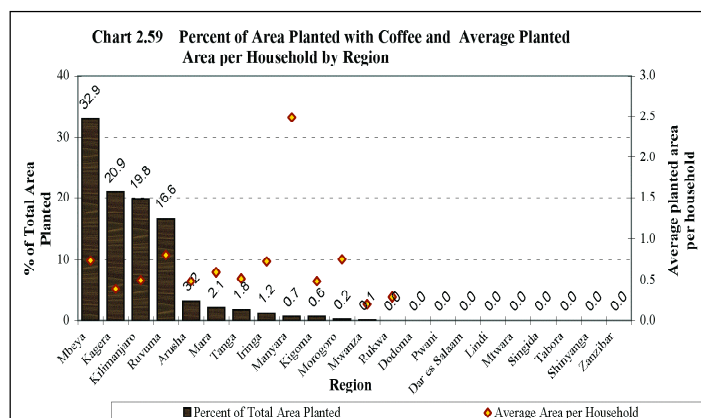


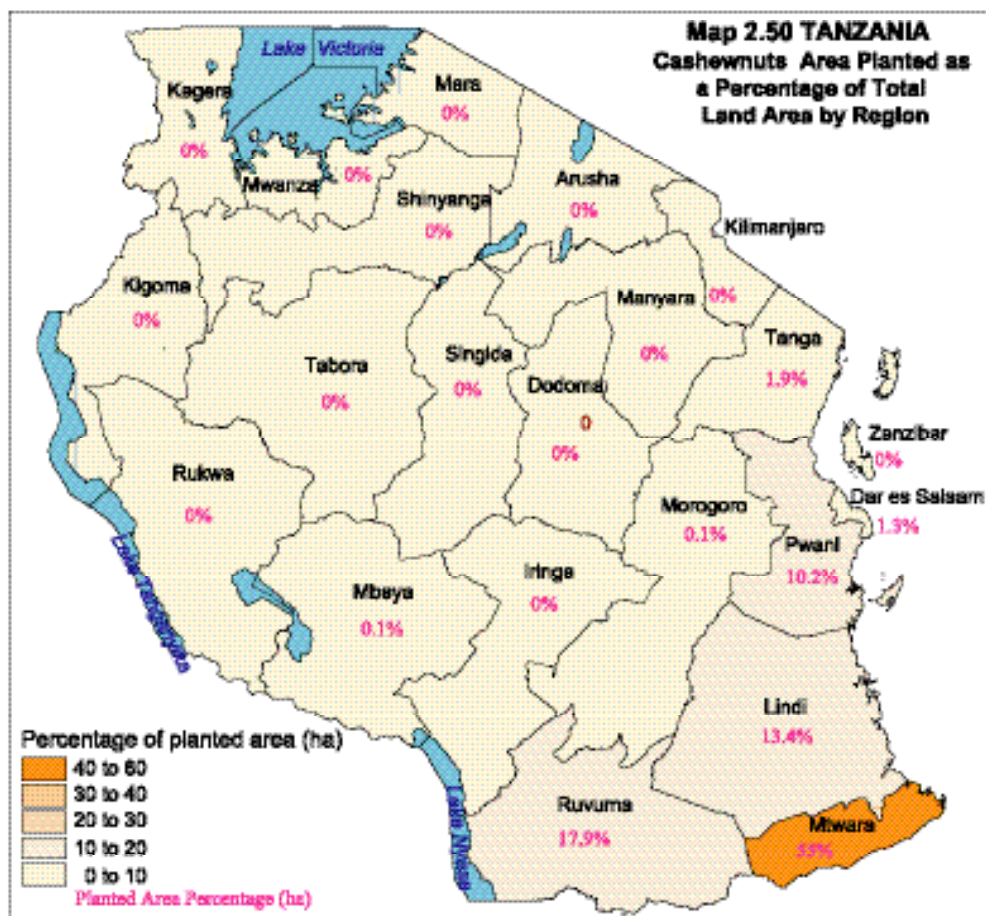
Bananas are grown almost everywhere in Tanzania, with the main producing areas in the high rainfall regions of Kagera (107,042 ha, 33%), Kilimanjaro (56,463 ha, 18%), Mbeya (52,715, 16%) and to a lesser extent Kigoma (20,503 ha, 6%). These regions account for 77.6 percent of the total area planted with bananas. All other regions produce small quantities with Lindi, Mtwara, Dar es Salaam and Dodoma producing very little (Chart 2.58, Maps 2.52, 2.53 and 2.54).

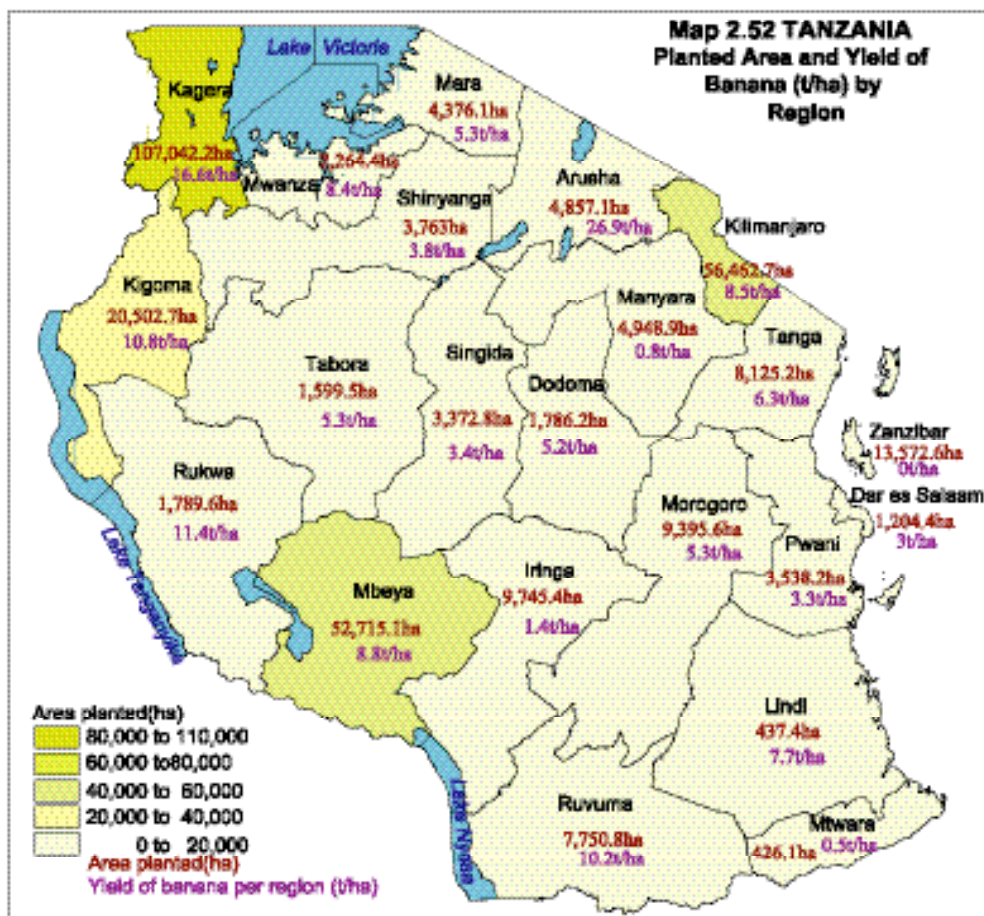
2.4.3 Coffee

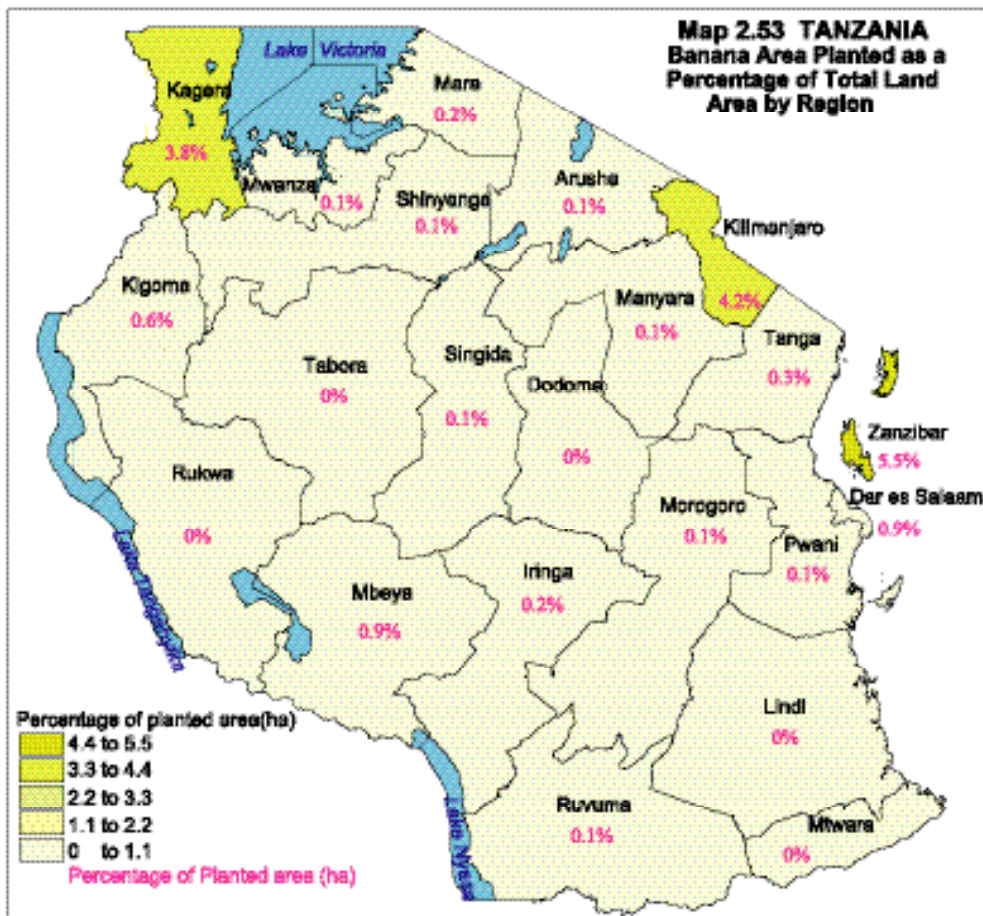
The total production of coffee by smallholders was 61,602 tonnes and is grown by 425,162 households which represents 3.7 percent of the total crop growing households and in terms of area planted, it is the third most important permanent crop grown by smallholders in Tanzania. The average area planted with coffee per coffee growing household was 0.42 ha per household and the average yield obtained by smallholders was 0.45 t/ha from a harvested area of 136,894 ha.

Coffee is mostly produced in 4 regions. Mbeya has the largest area planted with coffee (59,460 ha, 33%). This is followed by Kagera (37,759 ha, 21%), Kilimanjaro (35,808 ha, 20%) and Ruvuma (29,961 ha, 17%), which represents 91 percent of the total area planted with coffee.









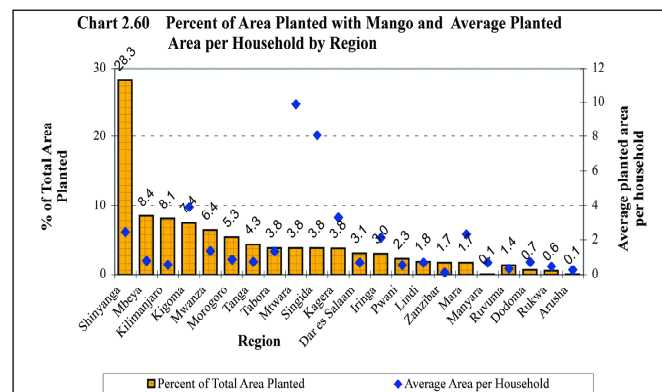
The remaining 9 percent is grown by seven regions and the other 11 regions do not produce coffee (Chart 2.59 Maps 2.55, 2.56 and 2.57).

Chart 2.97 shows that the largest planted area per household is in Manyara region, however, due to the small quantity planted in this region coupled with the weighting factor this figure should be treated with caution.

2.4.4 Mango

The total production of mangoes by smallholders on the Mainland was 336,028 tonnes and are grown by 212,231 households which represent 4.4 percent of the total crop growing households and in terms of area planted, it is the 5th most important permanent crop grown by smallholders (with a planted area of 97,442 ha on the Mainland). The average area planted with mangoes per mango growing household was 1.0 ha per household. The estimate for yield is on the high side, indicating either an overestimation of production or an underestimation of harvested area and further investigation of the data is required in order to come up with plausible estimates. Of the total planted area of mangoes in the country, only 1.6 percent is by large scale farms. In Zanzibar 1,731 hectares of mangoes were grown.

Mangoes are produced by smallholders in almost every region of the country. Shinyanga region has the largest area planted with mangoes (28,065 ha or 28.3% of the total area planted with mangoes by smallholders) and the region produces about three times more than Mbeeya, the next highest producing region with a planted area of 8,359 ha, (8.4%) followed by Kilimanjaro (8,045 ha, 8.1%), Kigoma (7,376 ha, 7.4%), Mwanza (6,358 ha, 6.4%), Morogoro (5,302 ha, 5.3%) and Tanga (4,268 ha, 4.3%). All the remaining regions have less than 4 percent each. Arusha, Manyara, Rukwa, Dodoma and Ruvuma have the smallest area planted with mangoes (Chart 2.60 and Maps 2.58, 2.59 and 2.60).

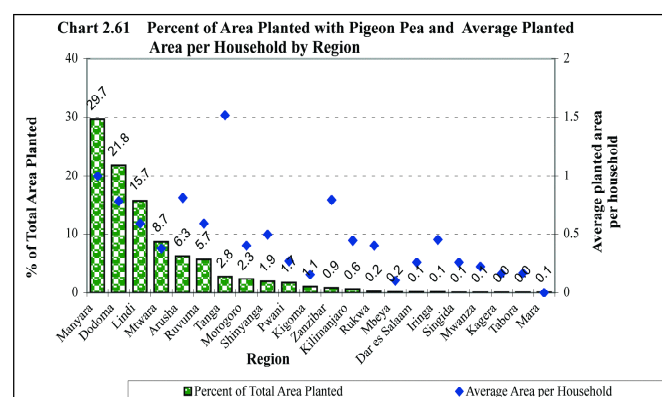


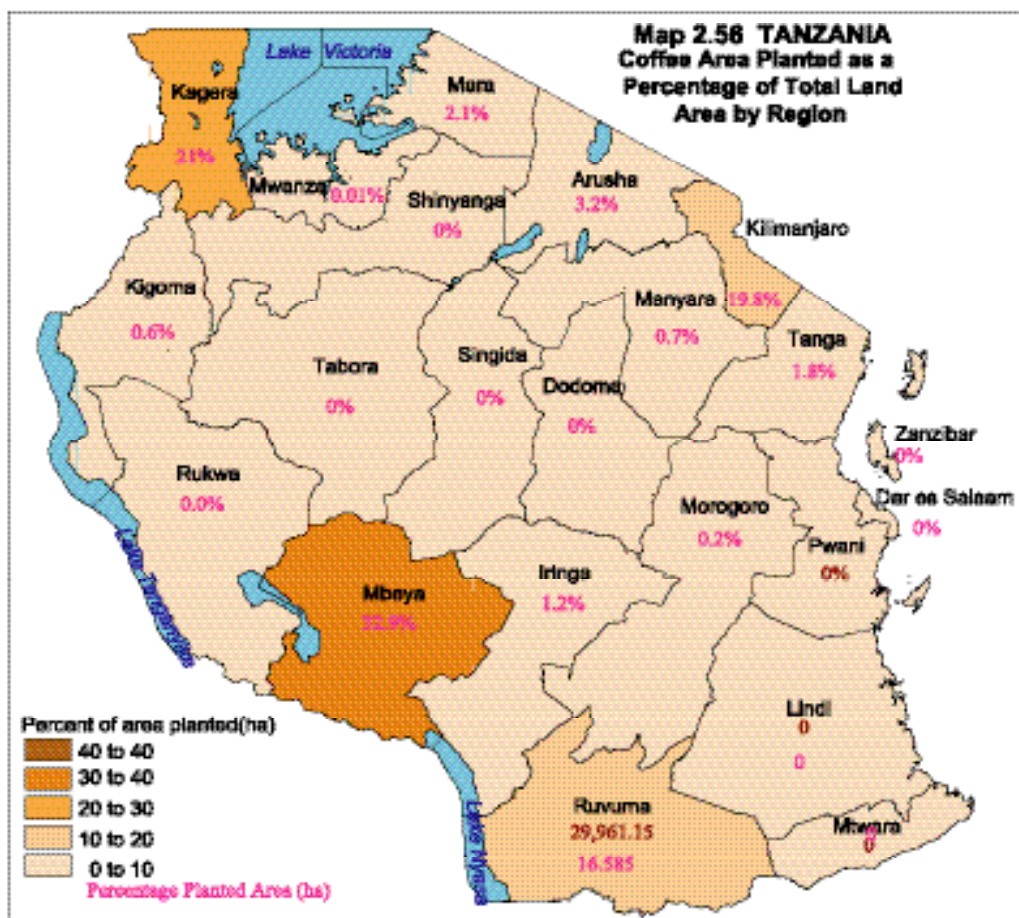
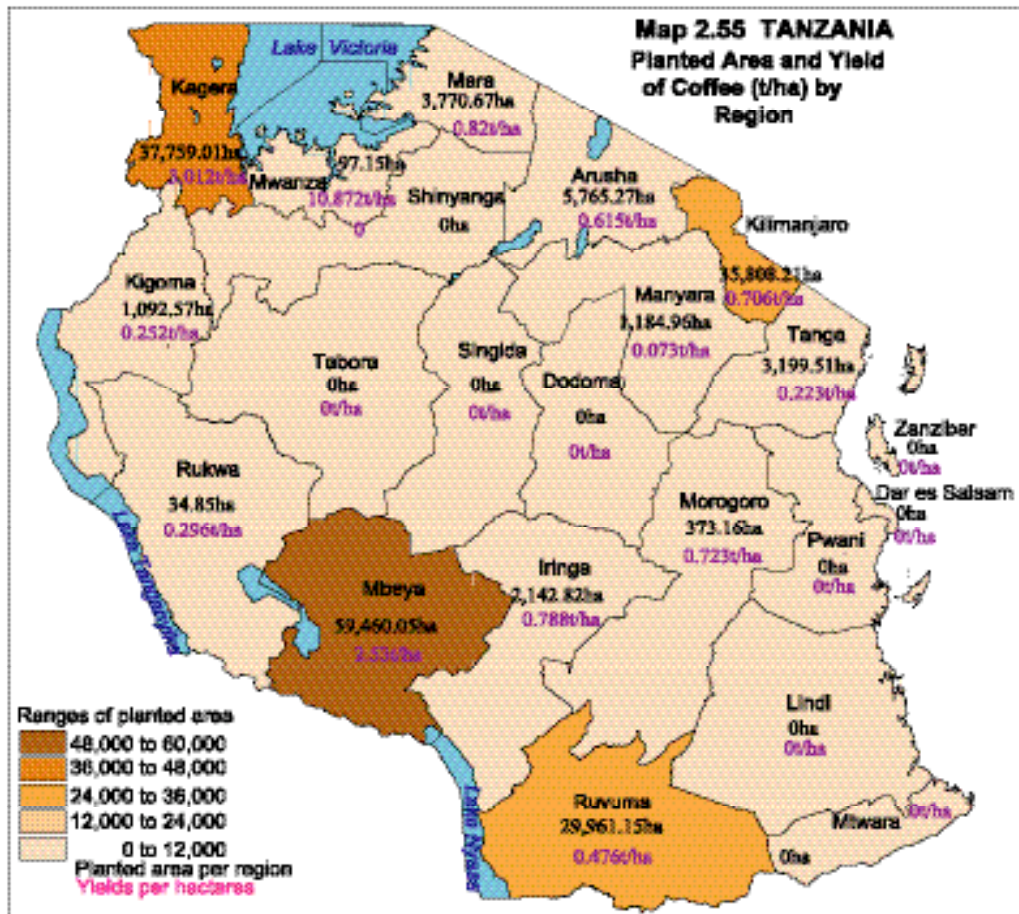
2.4.5 Pigeon Peas

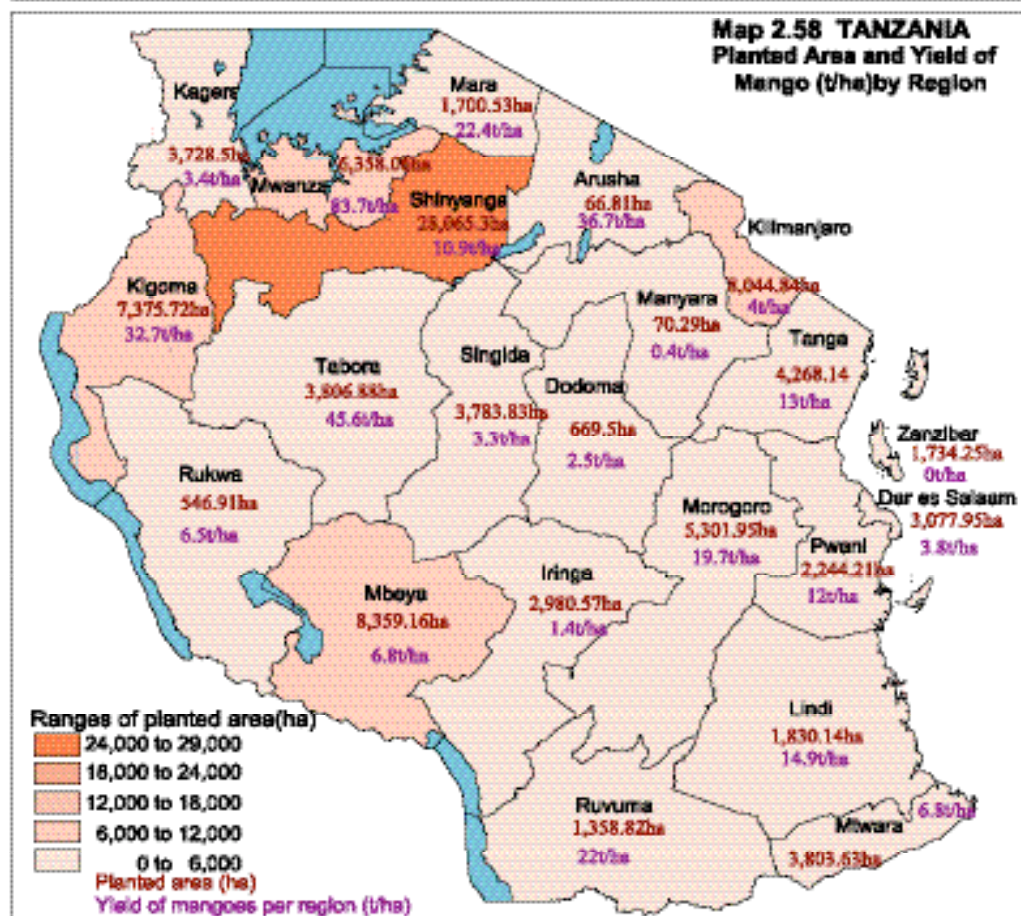
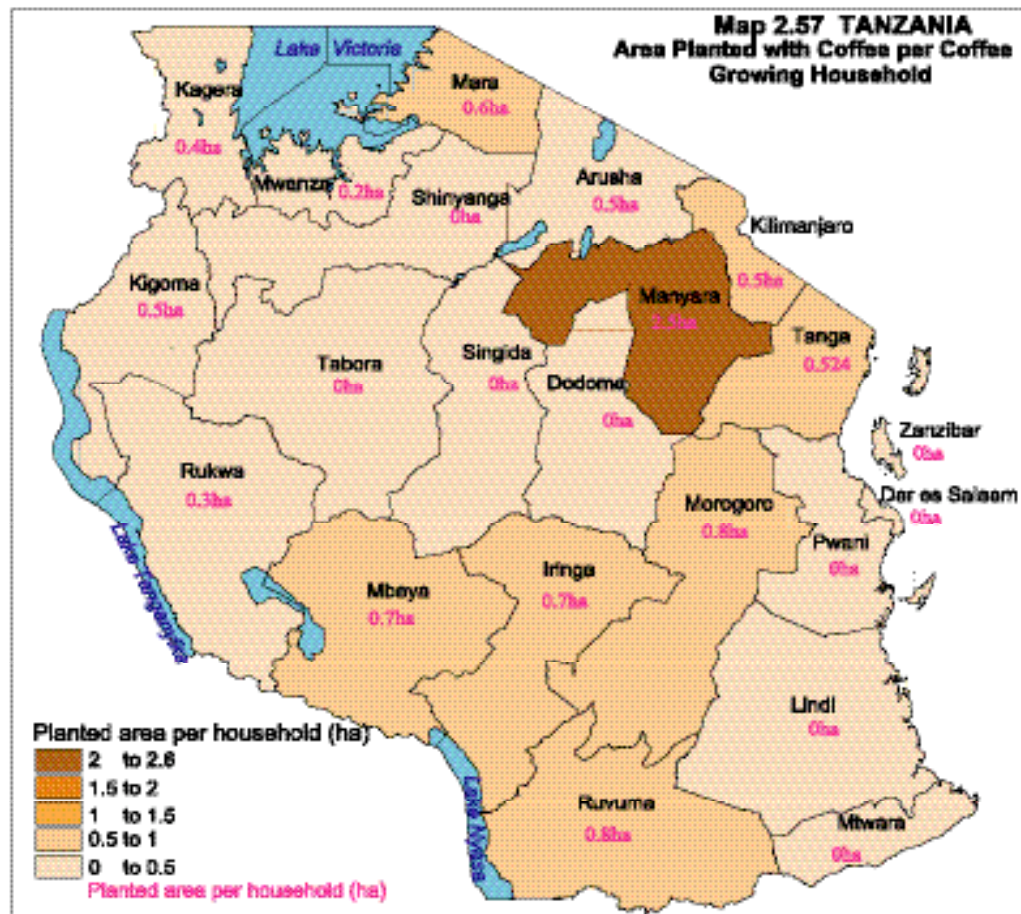
The total production of pigeon peas by smallholders was 26,615 tonnes, from a harvested area of 69,454 ha resulting in a 0.38 t/ha yield. Pigeon peas are grown by 140,014 households having an average of 0.6 hectares per pigeon pea producing household. Very small amounts of pigeon pea are grown in large scale farms.

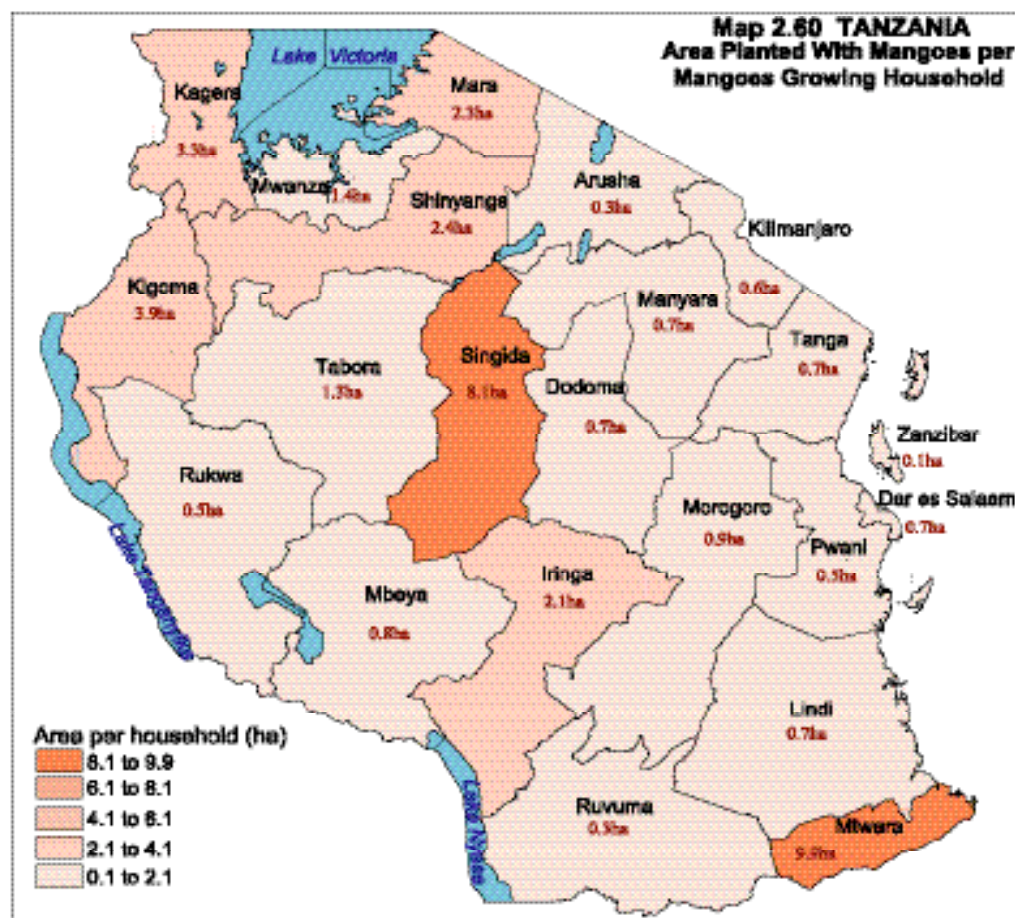
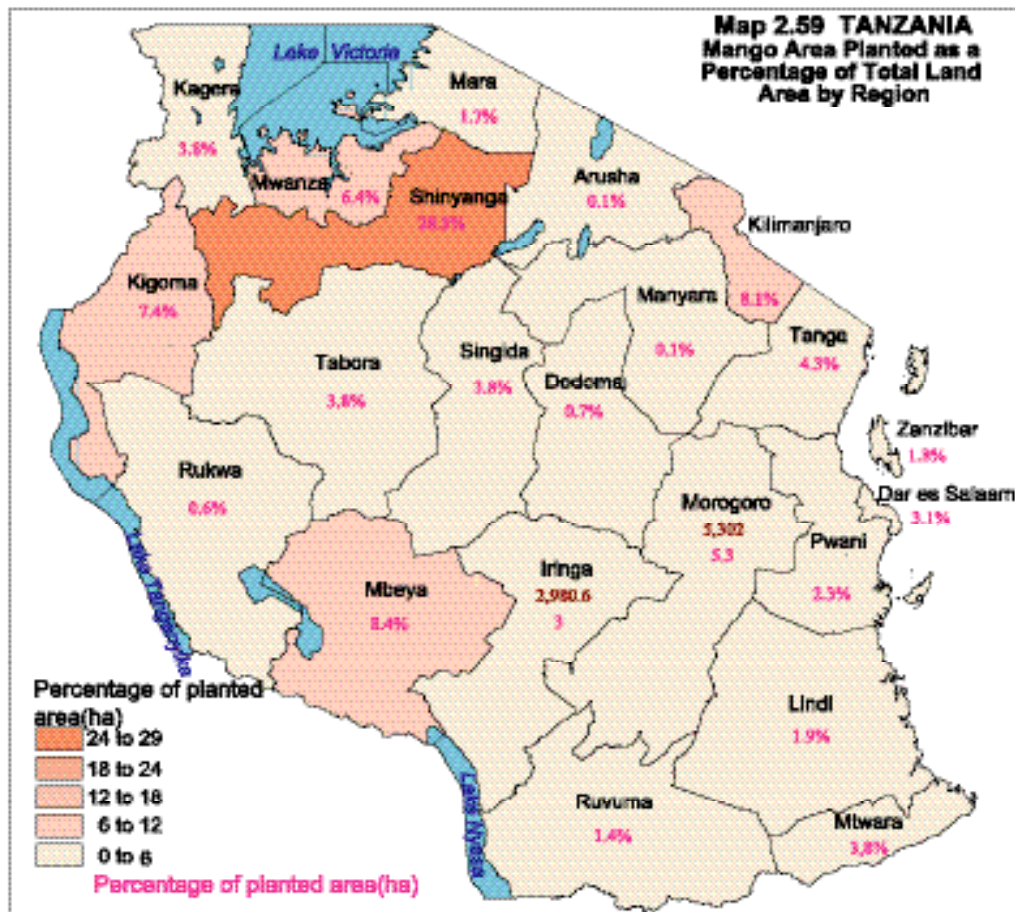
Pigeon pea production is mostly concentrated in the

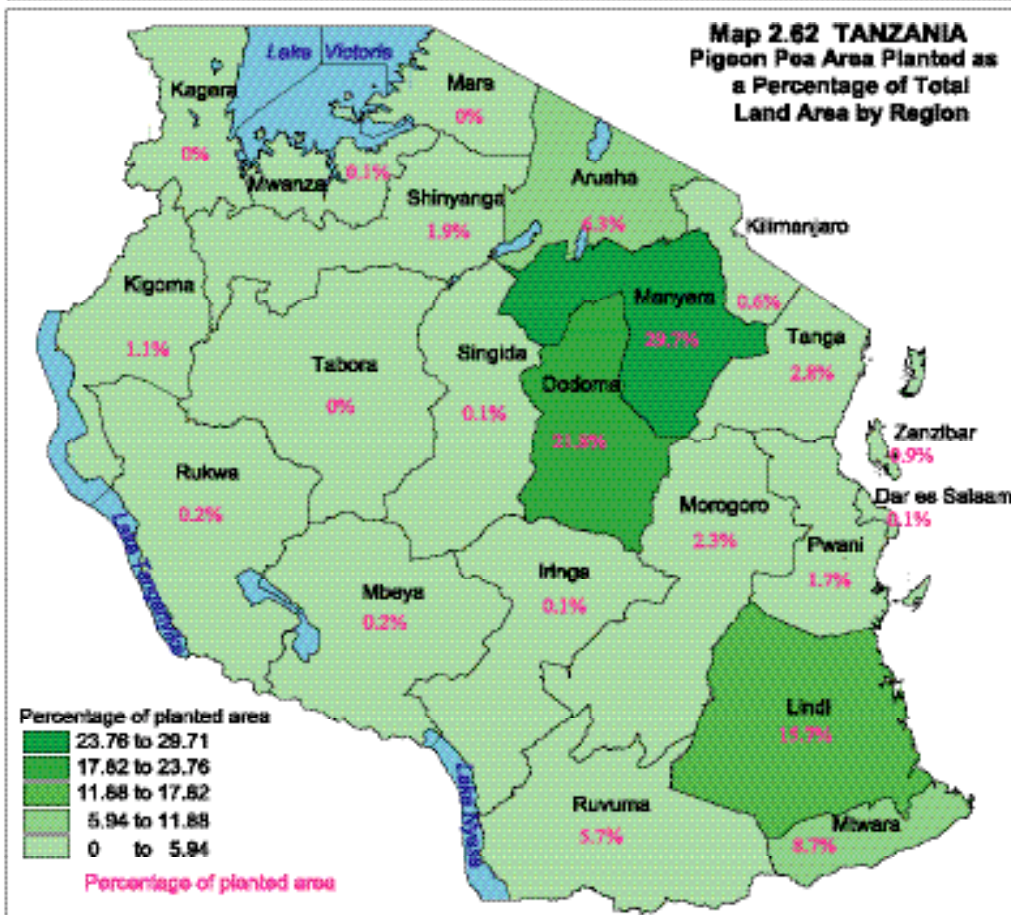
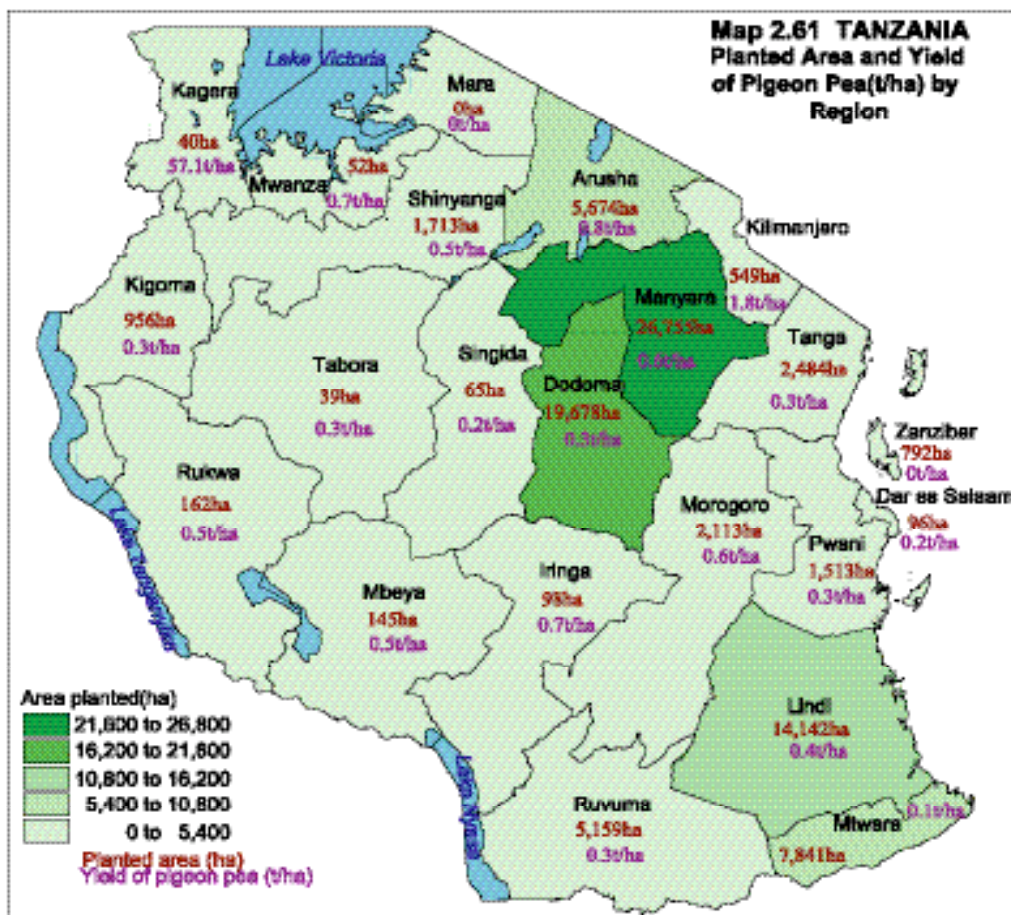
Eastern part of the country with Manyara having the highest percentage of the area planted with pigeon pea (26,755 ha, 30% of the total area planted with pigeon peas), followed by Dodoma (19,678 ha, 21.8%), Lindi (14,142 ha, 15.7%) and Mtwara (7,841 ha, 8.7%). Other less important regions are Arusha (5,674 ha, 6.3%) and Ruvuma (5,159 ha, 5.7%). Each of the remaining regions have less than 5 percent of the total area planted with pigeon peas. Practically no pigeon peas are grown in Mara, Tabora, Kagera, Mwanza, and Singida regions (Chart 2.6,1 Maps 2.61, 2.62 and 2.63).

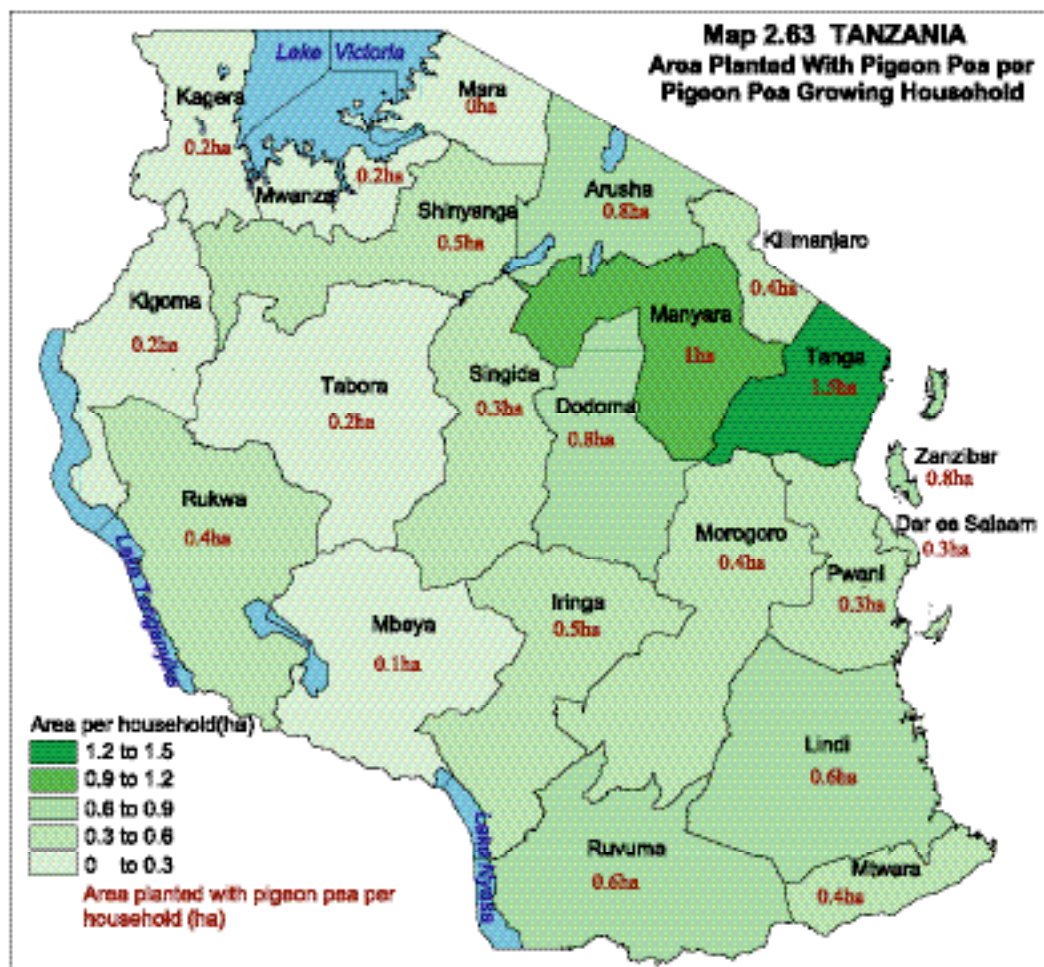








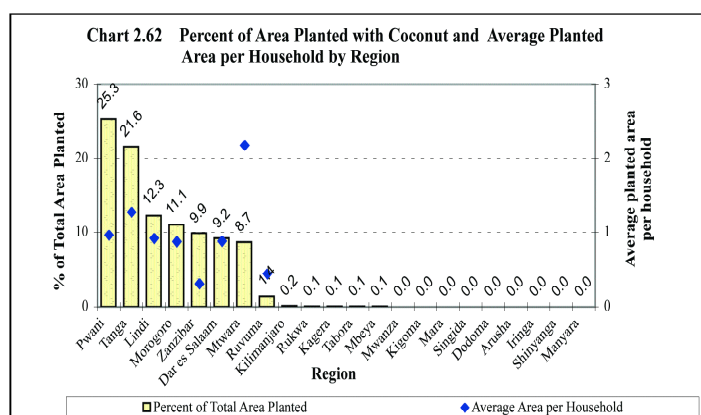




2.4.6 Coconuts

The total production of coconut by smallholders on the Mainland was 102,458 tonnes, with a harvested area of 38,122 ha resulting in a 2.69 t/ha yield. Coconuts are grown by 94,172 smallholder households resulting in an average of 0.4 hectares per coconut producing household. Of the total planted area of coconuts on the Mainland is 68,313 ha. Only 7 percent are by large scale farms.

Coconut production is mostly concentrated in the East of the country with Pwani having the largest proportion of the area planted with coconuts (17,300 ha, 25.3% of the total area planted with coconut) and Tanga (14,765 ha, 21.6%). These are followed by Lindi (8,381 ha, 12.3%), Morogoro (7,550 ha, 11.1%), Zanzibar (6,750 ha, 9.9%), Dar es Salaam (6,289 ha, 9.2%) and Mtwara (5,947 ha, 8.7%). The remaining regions have either very little coconuts or none at all (Chart 2.62, Maps 2.64, 2.65 and 2.66).



2.4.7 Oranges

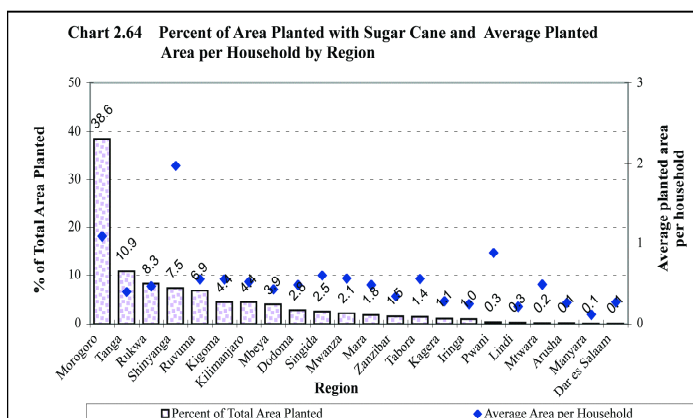
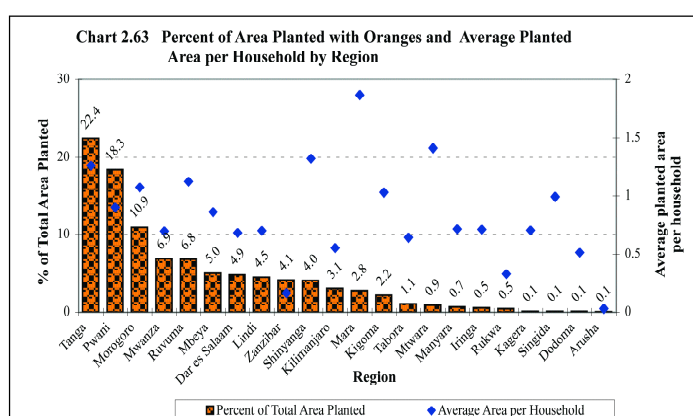
The total production of oranges by smallholders in Tanzania was 194,978 tonnes, with a harvested area of 23,062 ha resulting in a 8.5 t/ha yield. The total planted area of oranges is 41,643 ha and are grown by 109,413 households giving an average of 0.4 ha per orange producing household. Of the total planted area of oranges in the country only 0.2 percent are by large scale farms.

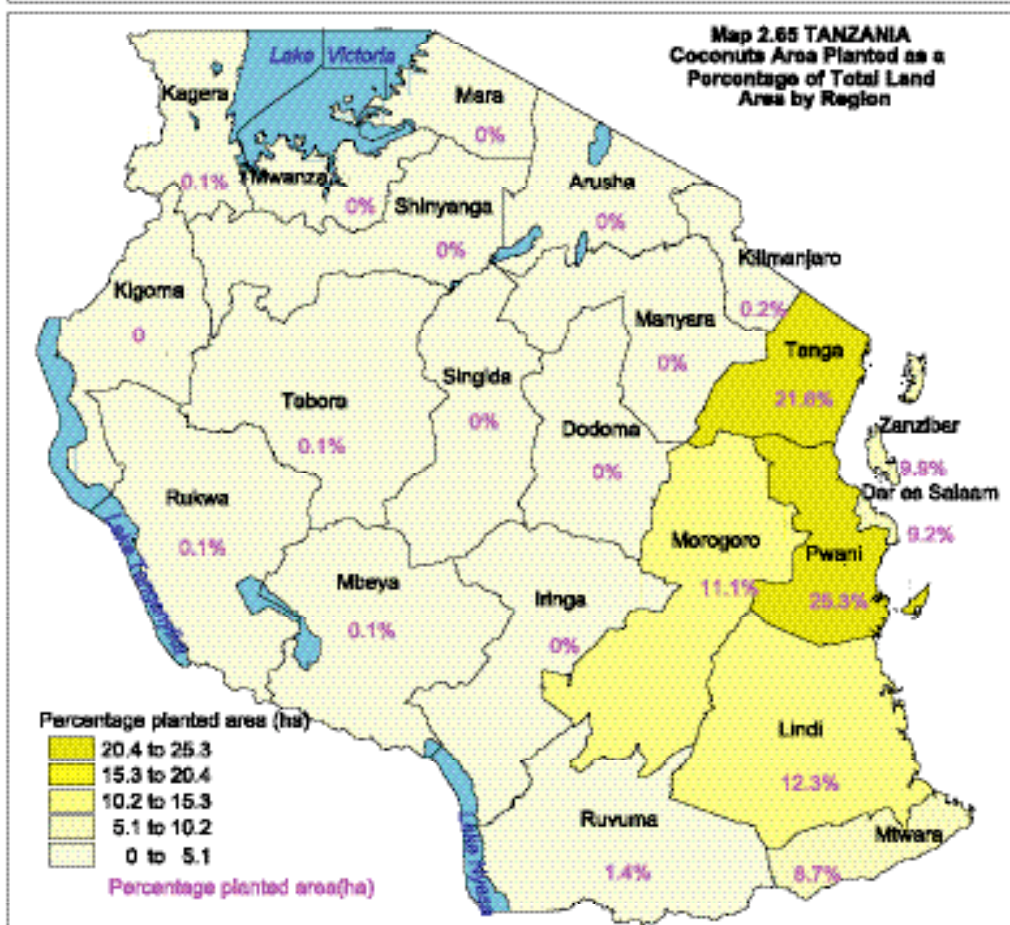
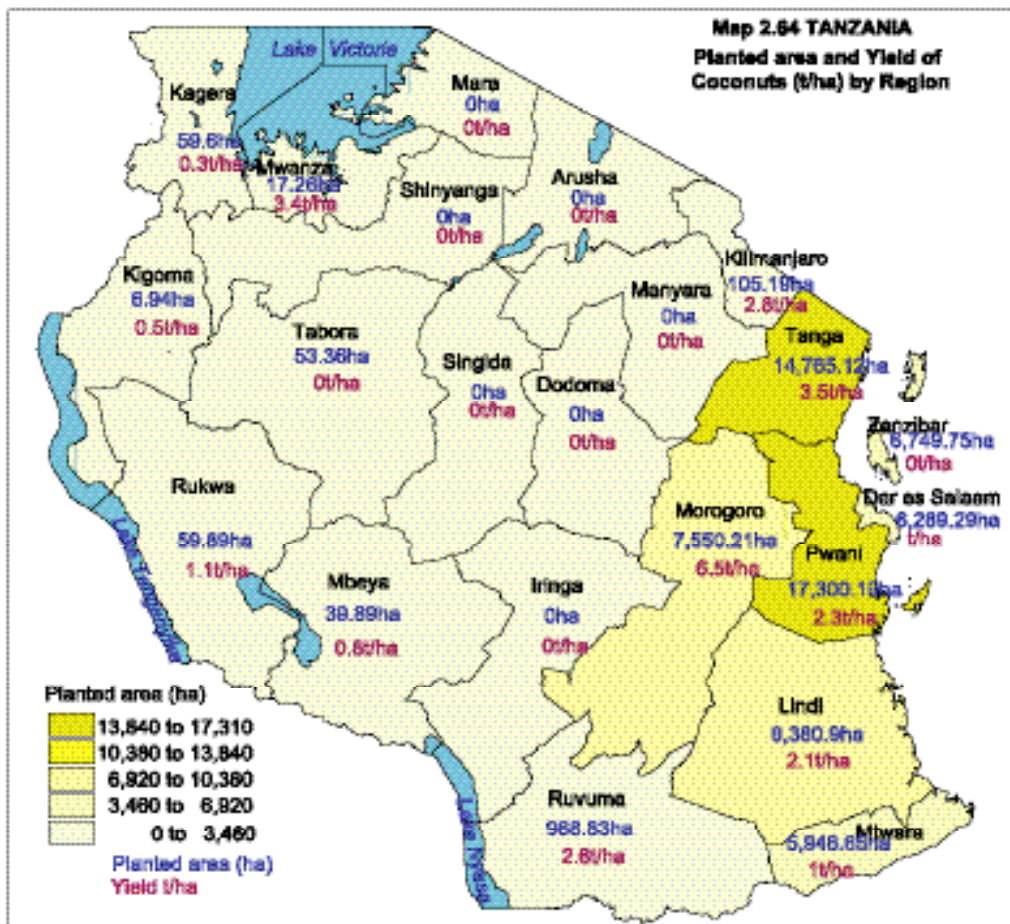
Orange production is largely concentrated in the in North East Coast, with Tanga (9,342 ha, 22% of the total area planted with oranges) and Pwani (7,635 ha, 18%) having the largest planted area. This is followed by Morogoro (4,549 ha, 11%) and Mwanza (2,855 ha, 7%) and Ruvuma (2,827 ha, 7%). (Chart 2.63, Maps 2.67, 2.68 and 2.69).

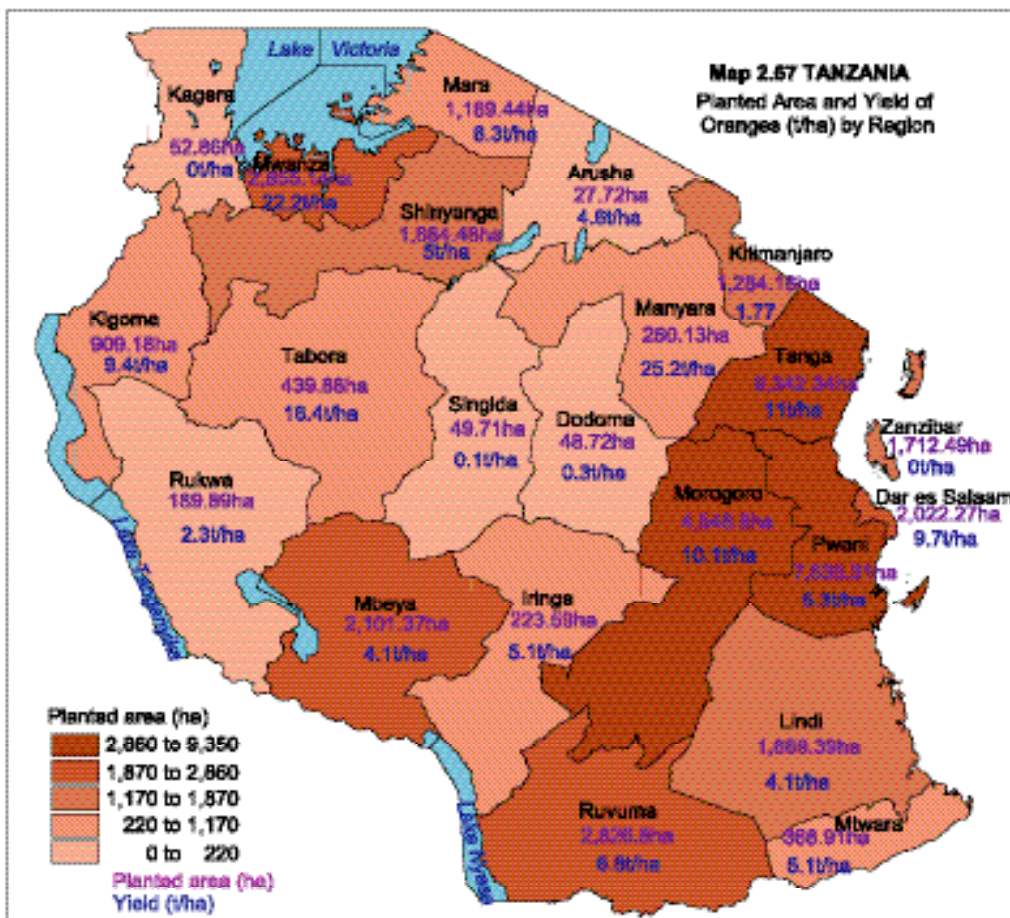
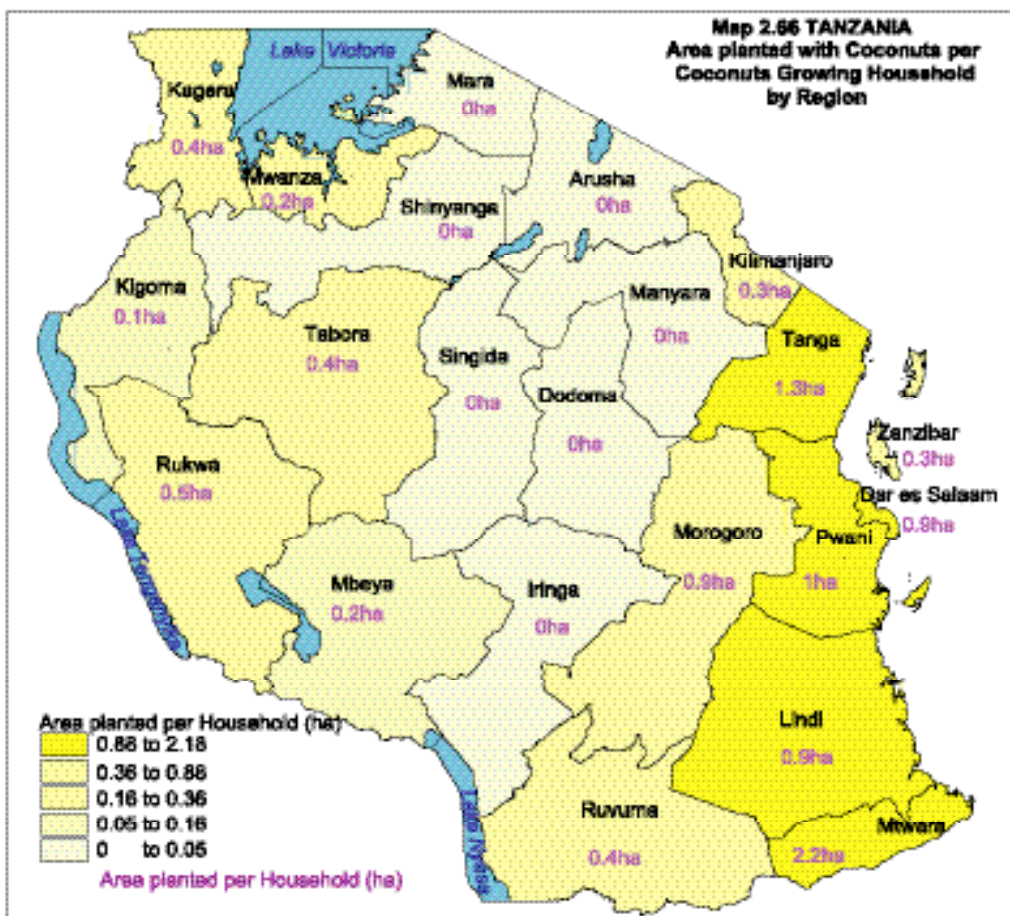
Considering the small land area of Dar es Salaam and Zanzibar, they have the largest percent of area planted with oranges per kilometre square (1.45% and 0.70% respectively). Arusha, Kigoma, Kagera, Singida, Dodoma and Iringa have the least area planted with Oranges.

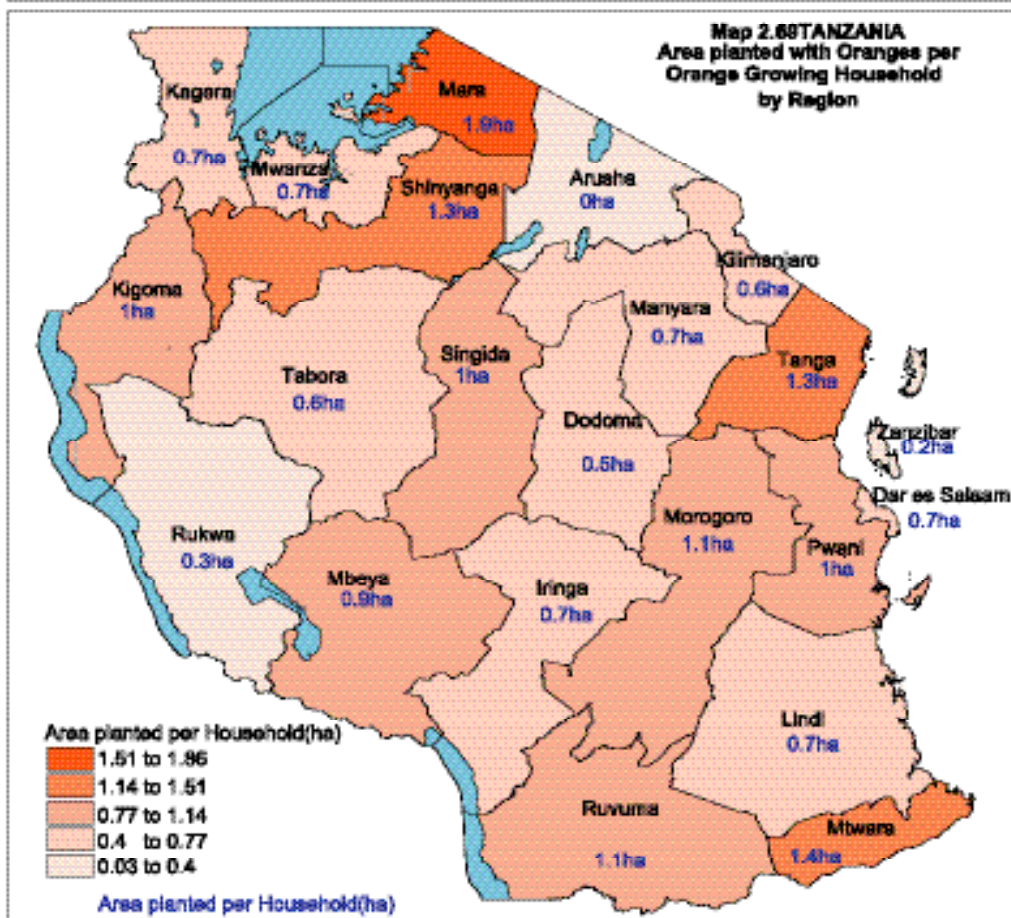
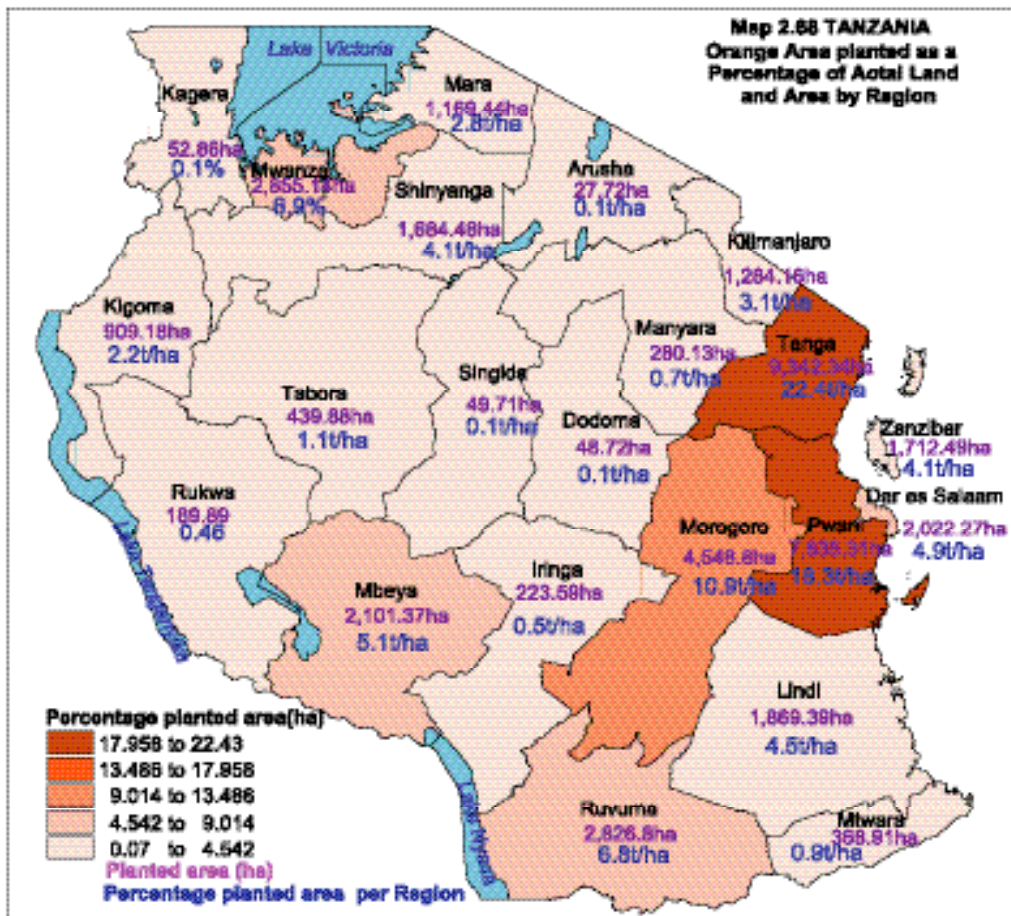
2.4.8 Sugar Cane

On the Mainland, the total smallholder sugarcane production was 404,694 tonnes, with a harvested area of 20,567 ha, resulting in a 19.7 t/ha yield. Sugar cane is grown by 50,607 households giving an average of 0.4 hectares per sugar cane producing household. Of the total production of sugar cane in the country,









household. Of the total production of sugar cane in the country, 55 percent is produced by smallholders.

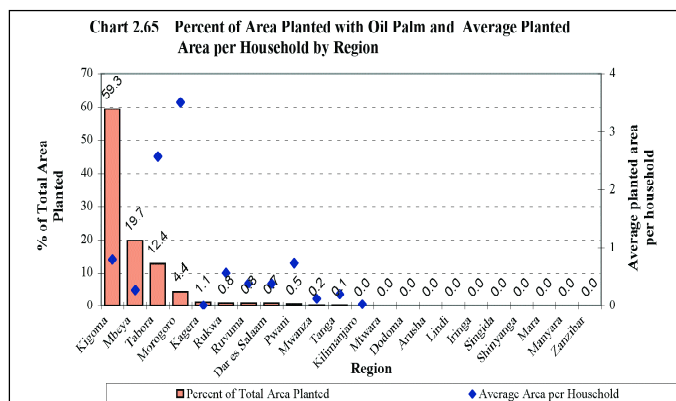
Sugar cane production is largely concentrated in Morogoro, with a planted area 8,330 ha or 39 percent of the total area planted with sugar cane. It has almost four times the planted area of Tanga, which is the second highest producing region in the country. Tanga has a planted area of 2,356 ha (10.9%) followed by Rukwa, Shinyanga and Ruvuma. The remaining regions constitute only 29 percent of the total area planted to sugar cane (Chart 2.64, Maps 2.70, 2.71 and 2.72).

2.4.9 Oil Palm

The total production of oil palm by smallholders was 51,109 tonnes, with a harvested area of 15,757ha resulting in a 3.24 t/ha yield. Oil Palm is grown by 27,934 households with an average of 0.6 hectares per oil palm producing household.

Oil palm production is largely concentrated in Kigoma, with a planted area of 10,287 ha or 59 percent of the total area planted with oil palm. It

has almost three times that of Mbeya which has the second largest planted area in the country (3,414 ha, 18%). Tabora and Morogoro have small quantities and the remaining regions have either very small areas or none under oil palm production (Chart 2.65 Maps 2.73, 2.74 and 2.75).

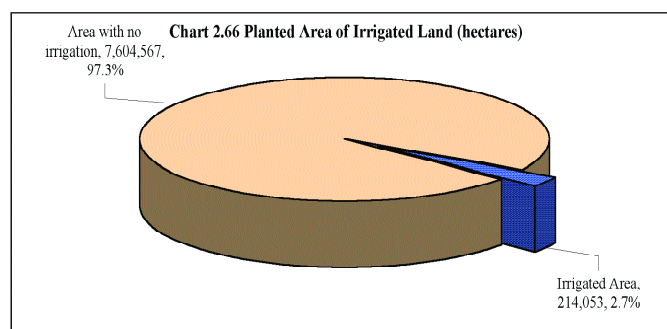


2.5 Irrigation

Water is the limiting factor to crop production in the majority of areas in Tanzania and without water, most other agricultural practices applied to a crop will not result in a significant increase in yield. This section deals with the area under irrigation for different crops and the means by which water is extracted from the source and applied to the field.

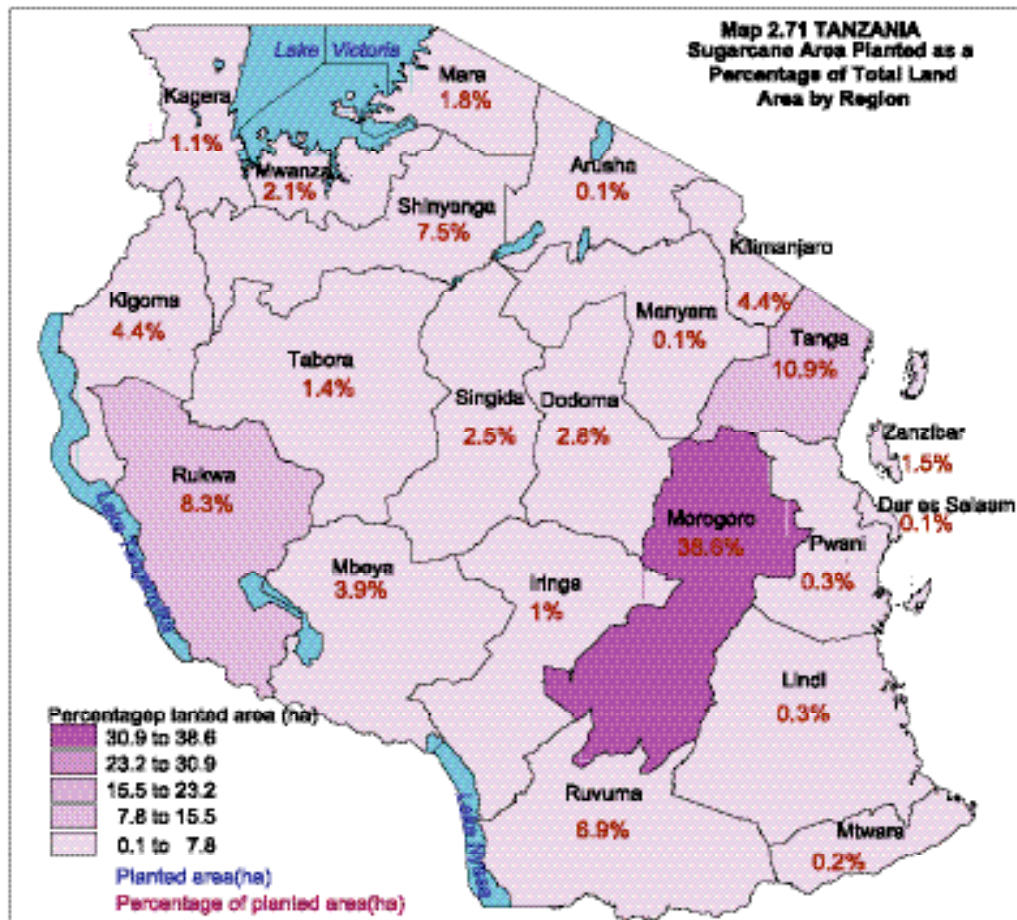
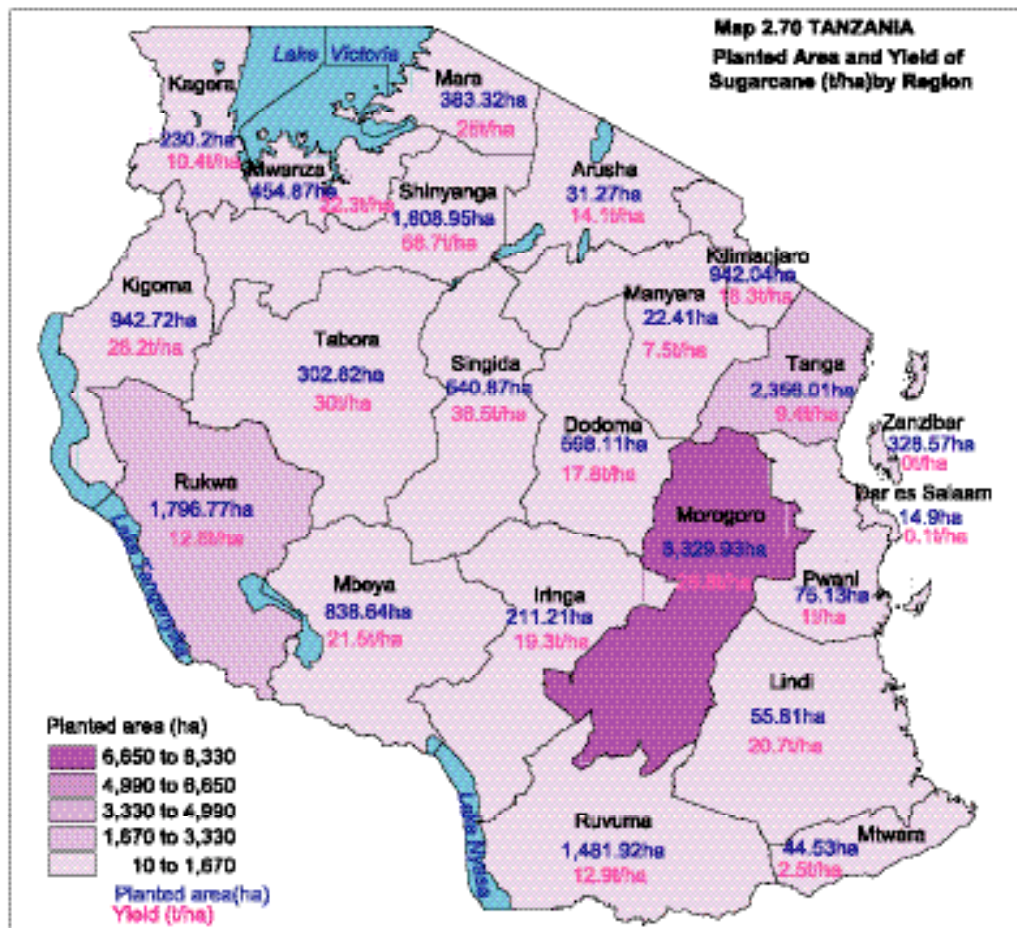
2.5.1 Area Planted with Annual Crops under Irrigation

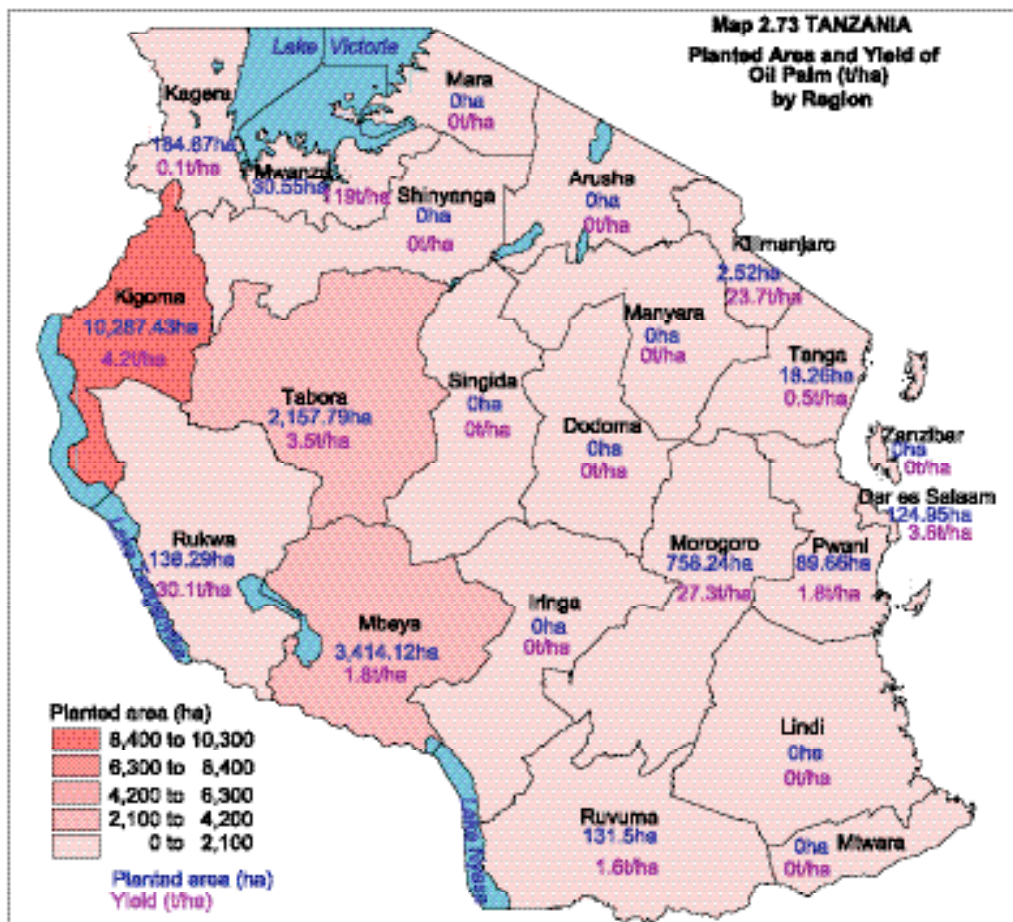
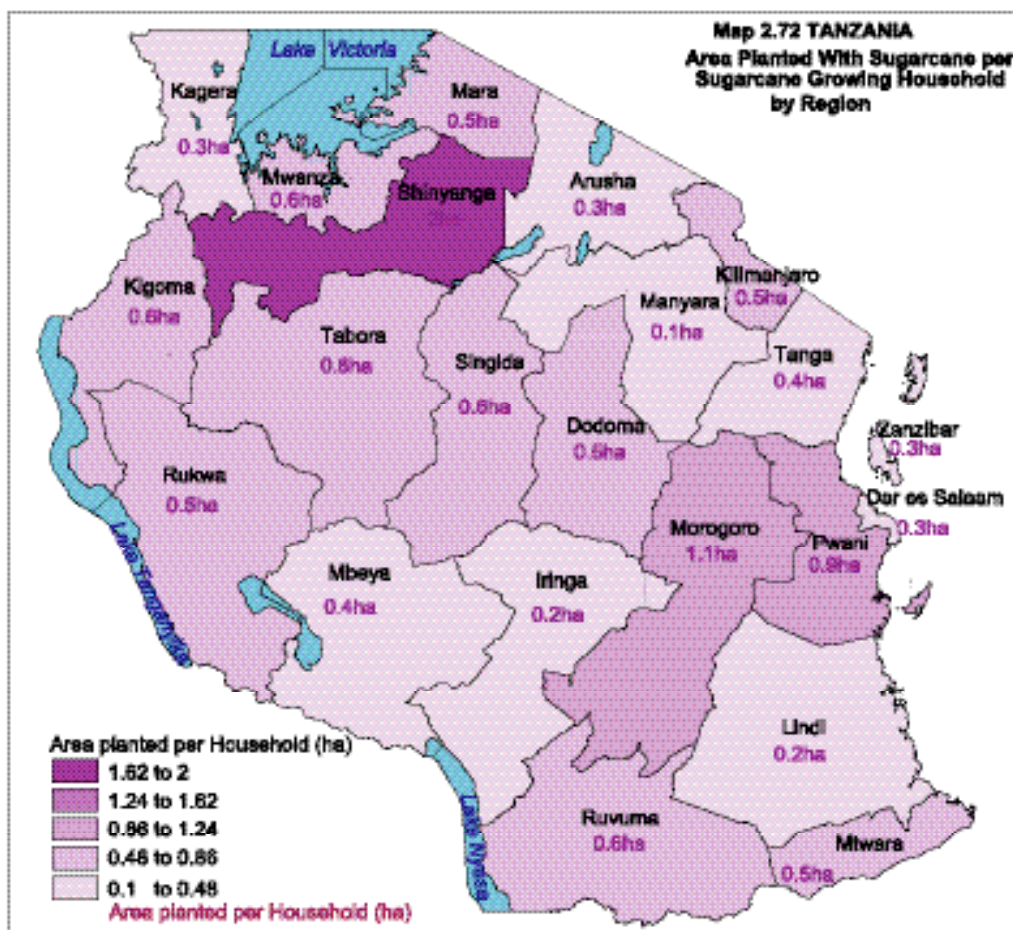
The total physical land area of annual crops under irrigation is very small at 168,430 ha. The total planted area under irrigation is 214,054 ha (211,872 ha on the Mainland and 2,182 in Zanzibar), representing only 2.7 percent of the total land area with annual crops. Of this, 165,437 ha (77%) was irrigated during the long rainy season (164,613 ha on the Mainland and 824 in Zanzibar) compared to only 48,616 ha (23%) in the short rainy season.

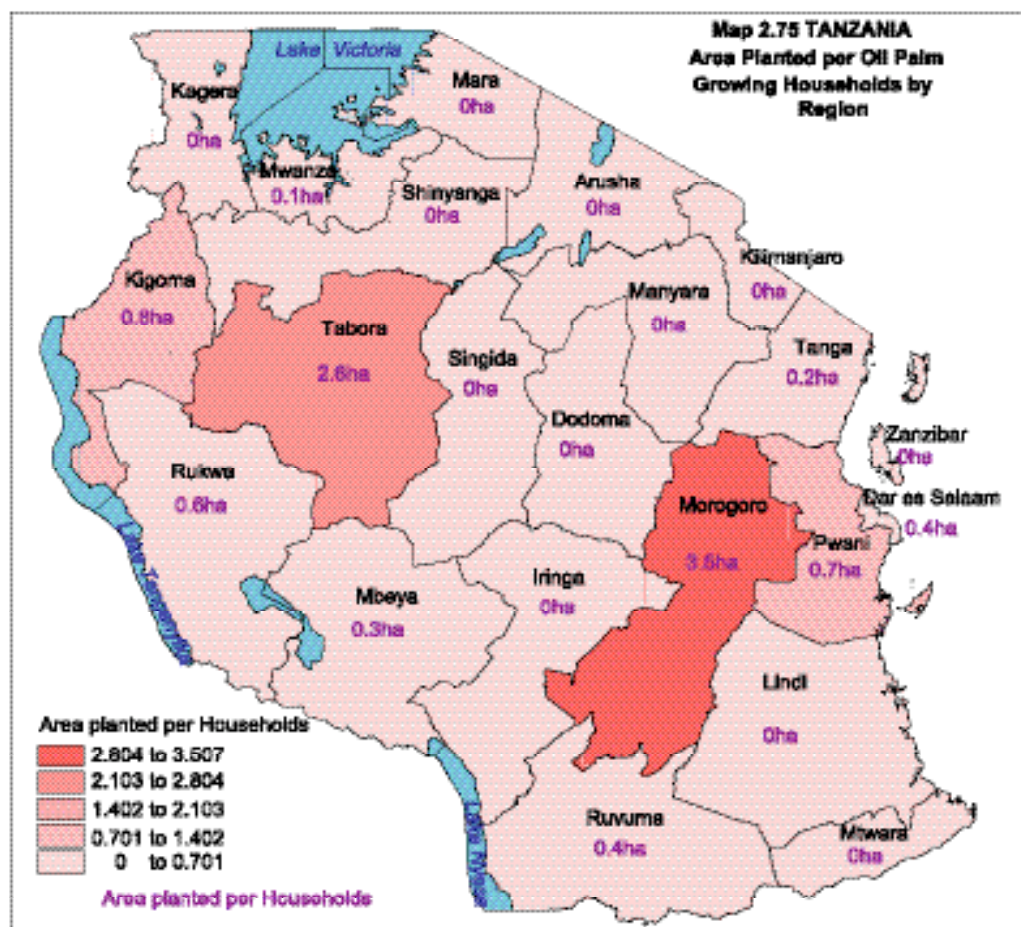
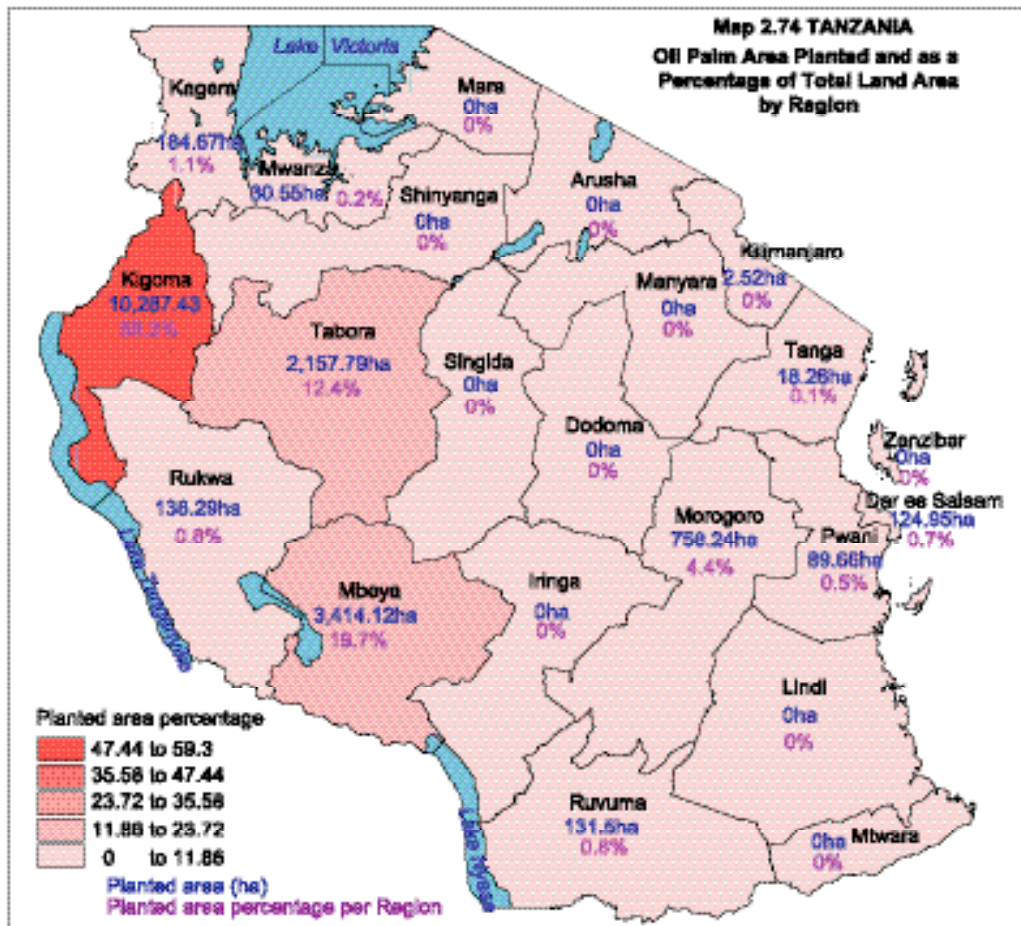


2.9 Planted Area under Irrigation by Season

Seasons	Mainland				Zanzibar				National			
	Area Under Irrigation (ha)	Area under Rainfed (ha)	Total Planted Area (ha)	Irrigated Area %	Area Under Irrigation (ha)	Area under Rainfed (ha)	Total Planted Area (ha)	Irrigated Area %	Total Area under Irrigation	Total Area under Rain fed (ha)	Total Planted Area (ha)	Irrigated Area %
Short Rainy	47,259	1,410,596	1,457,855	3.2	1,357	9,701	11,058	12.3	48,616	1,420,297	1,468,913	3.3
Long Rainy	164,613	6,117,875	6,282,488	2.6	824	66,394	67,218	1.2	165,437	6,184,269	6,349,706	2.6
Total	211,872	7,528,471	7,740,343	2.7	2,181	76,095	78,276	2.8	214,053	7,604,566	7,818,619	2.7

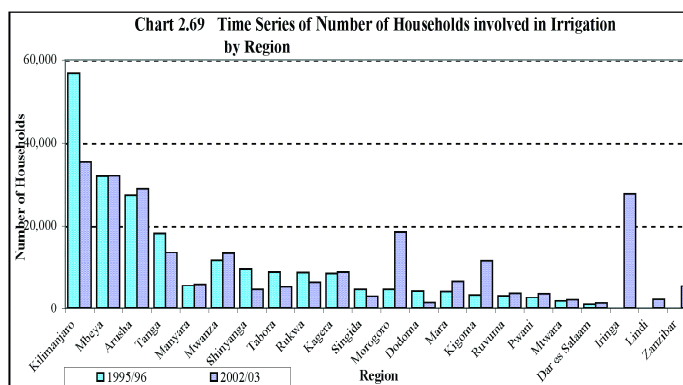
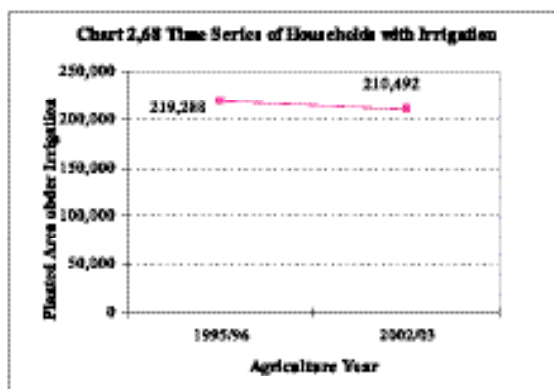
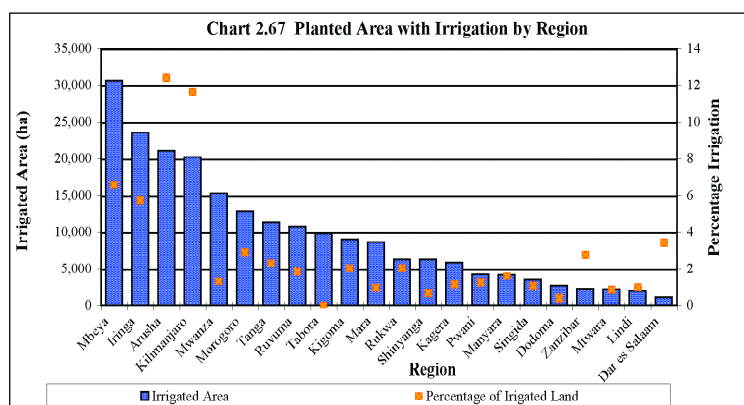






(47,259 on the Mainland and 1,357 in Zanzibar) suggesting that most irrigation is used as supplementary irrigation to compliment the water from rainfall during the long rainy season. (Table 2.8).

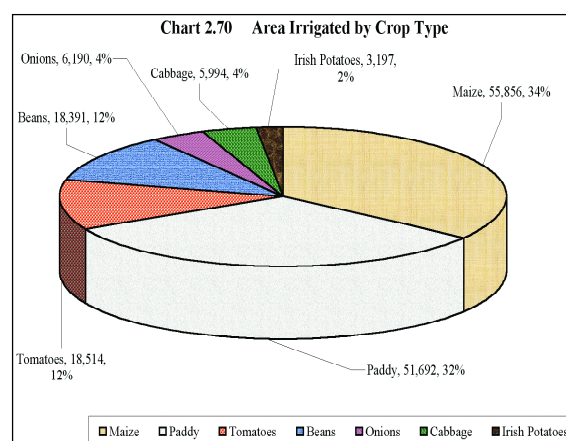
More vegetables are grown in the short rainy season with irrigation (68% of the fruit and vegetable planted area during the short rainy season) than in the long rainy season (54%)



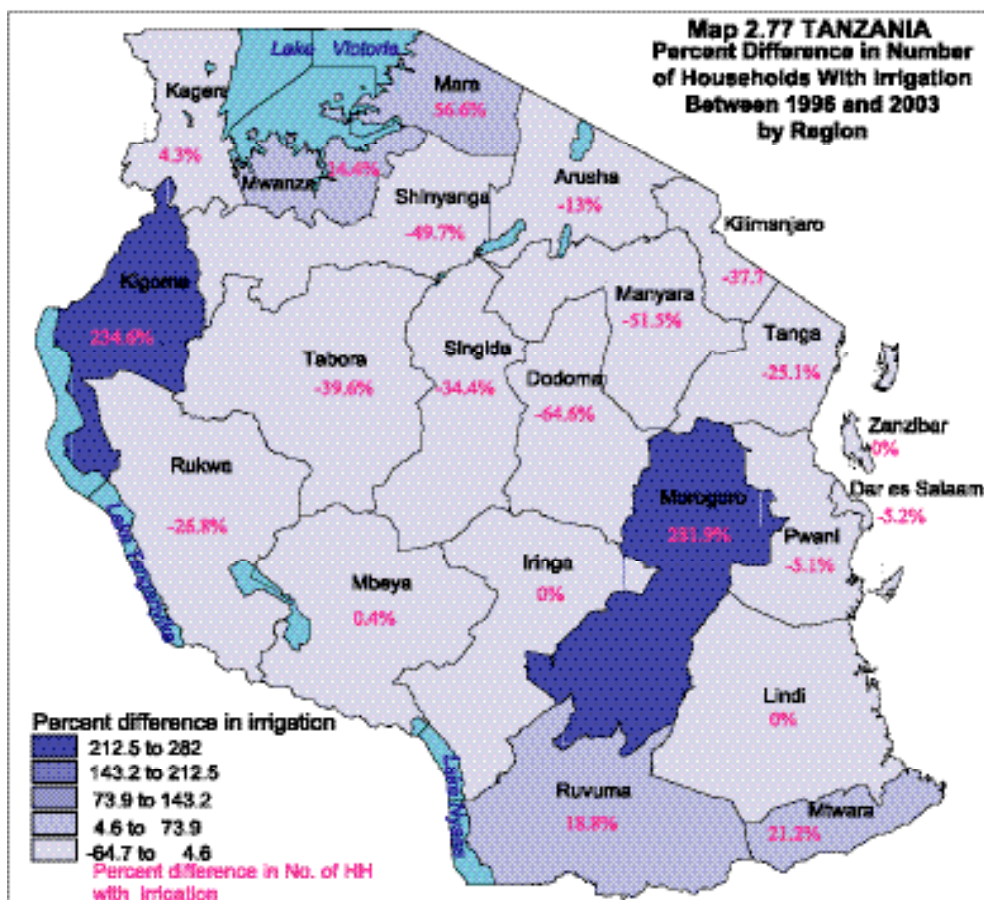
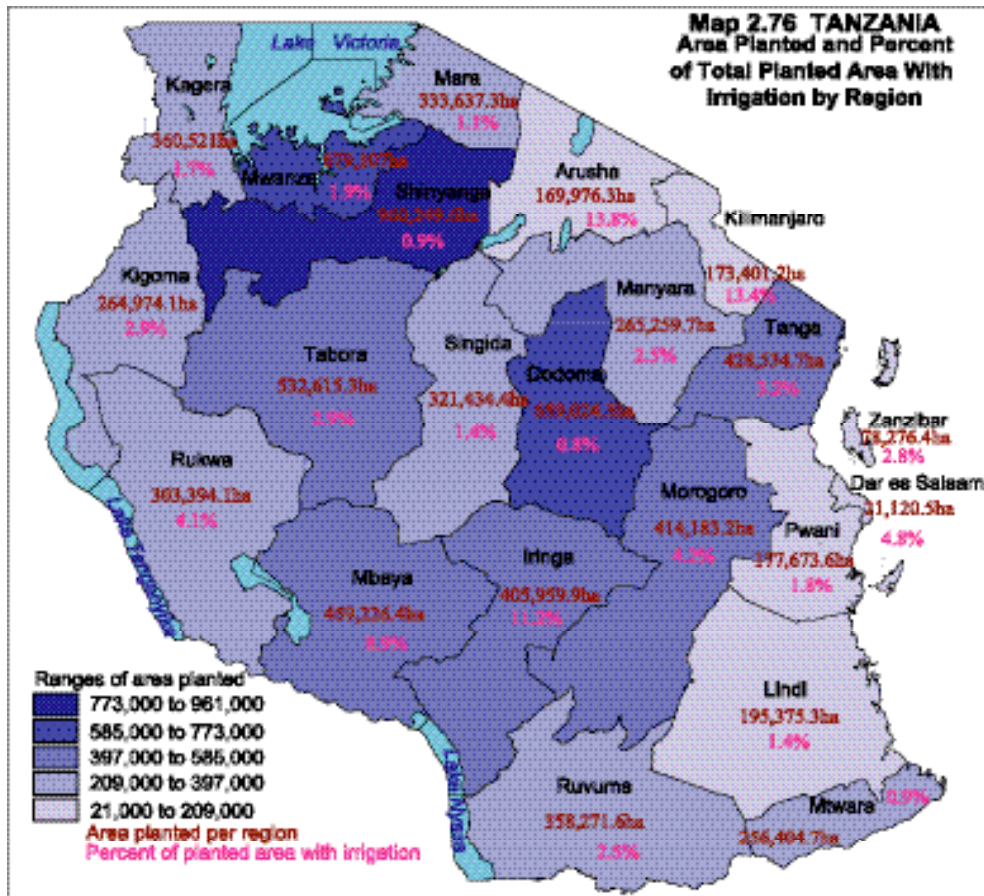
(Map 2.76).

The regions with the largest land area of annual crops under irrigation are Mbeya (30,393 ha, 14% of the total planted area with irrigation) and Iringa (23,423 ha, 11%). When expressed as a percentage of the total area planted per region, Arusha and Kilimanjaro regions have proportionally more planted area with irrigation than other regions (12.4% and 11.7% respectively), followed by Mbeya (6.7%) and Iringa (5.8%) (Chart 2.67 and Map 2.77).

The number of smallholders practicing irrigation is 240,721. Time series analysis, using data from the previous census and surveys indicates that the number of households with irrigation has remained stagnant over the last eight years (Chart 2.68). (The numbers in the chart for the 2003 data point is less than the actual number due to the absence of comparative historical data for Iringa and Zanzibar). The main regional difference is with Morogoro where there was an increase of 282 percent in the planted area with irrigation over the period 1996 to 2003. This is followed by Kigoma (235%) and Mara (57%). Kilimanjaro had the greatest decrease in the number of households practicing irrigation (from 56,836 to 35,410 households) over the same period (Chart 2.69).

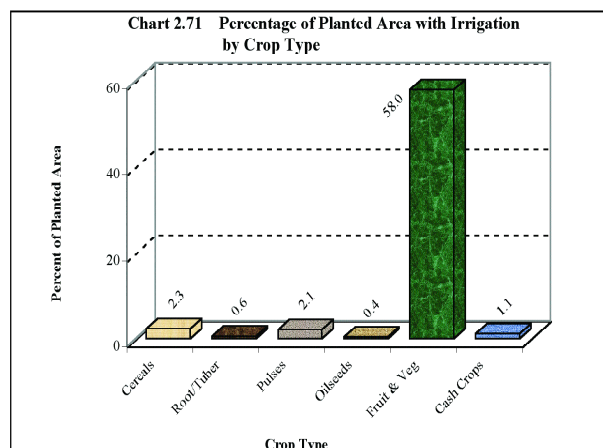


The irrigated planted area for individual crops and crop types (e.g. roots and tubers) is for the Mainland only. Fruit and Vegetables have the highest percentage of area planted with irrigation than any other crop type. The area of fruit and vegetables under irrigation is 40,313 ha which represents 58 percent of the total planted area with fruit and vegetables.



Water melon, chillies, amaranths and cabbage are the most cultivated fruit and vegetable crops under irrigation. The use of irrigation for the production of annual cash crops is very limited (4,430 ha, 1% of the total planted area with cash crops) (Chart 2.71).

In terms of total planted area, maize and paddy received most irrigation (107,549 ha, 66% of the total irrigated planted area). This is followed by tomato and beans (12%), onions (4%), cabbage (4%) and Irish potatoes (2%), (Chart 2.70). Cereals received more irrigation (10,958 ha, 60.4% of the total area planted under irrigation) than other crop types. This is followed by fruit and vegetables with 40,313 ha (21.9%), oils seeds and oil nuts with 2,315 ha (1.3%) (Chart 2.71). More irrigation is applied to beans than other pulse crops and accounts for 92 percent of the total planted area of pulses with irrigation. Ground nuts and sunflower receive more irrigation than other oilseeds and accounts for 56.6 and 37.8 percent of the total area planted with oil seeds under irrigation respectively. This is followed by simsim (4.8%).



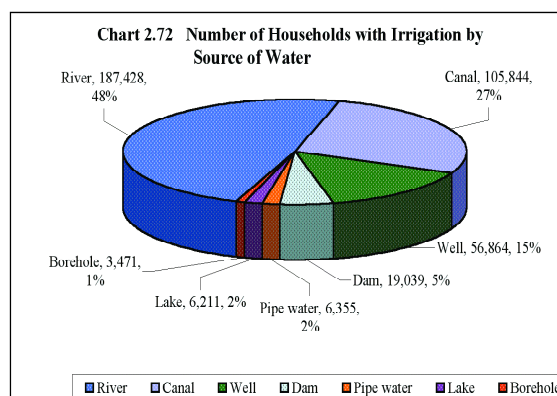
For root crops the planted area with irrigation for cassava recorded as a permanent crop during enumeration is not included in this section. Of the root and tuber crops, Irish potatoes benefits most from irrigation compared to other roots and tuber crops even though the area under irrigation for all roots and tuber crops is very small. Out of the 5,820 ha under irrigation 3,198 ha were planted with Irish potatoes (54.9%), 1,320 ha with sweet potatoes (22.7%), 1,043 ha planted with cassava (17.9%), 134 ha with cocoyam (2.3 %) and 126 ha with yam (2.1%).

2.5.2 Area Planted with Permanent Crops under Irrigation

The planted area with irrigation for permanent crops is almost the same as that of annual crops. The total area under irrigation planted with permanent crops is 183,793 ha representing 14 percent of the total area planted with permanent crops. Cashew nuts has the largest irrigated area (58,843 ha, 32.0%), followed by banana (51,042ha, 27.8%), coffee (27,173ha, 14.8%) and mango (19,128ha, 10.4%). In terms of planted area with irrigation per crop, sugar cane has the highest percent (24%) followed by banana and mango (16%) and then oranges and coffee (15%) (Table 2.9).

2.5.3 Source of Water Used for Irrigation

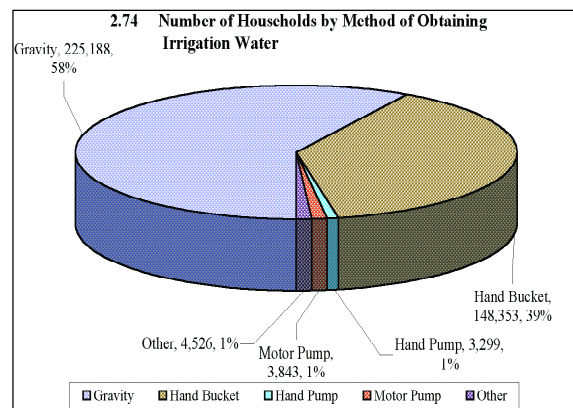
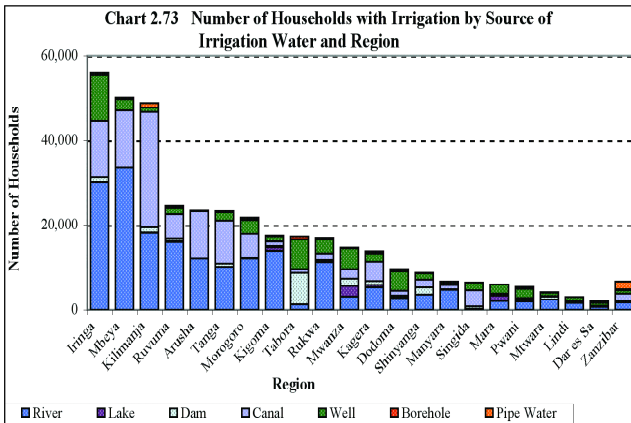
The main source of water used for irrigation is from rivers (48% of households with irrigation), canals (27%) and wells (15%). Only 5 percent of households use water from dams and the proportion of households that use lake, pipe water and borehole as a source of water for irrigation is very low (2%, 2% and 1%) (Chart 2.72).



Almost all households with irrigation in Kigoma and Rukwa obtained irrigation water from rivers. In Mbeya, Iringa, Ruvuma and Morogoro over 50 percent of the households with irrigation use rivers as the source of irrigation water.

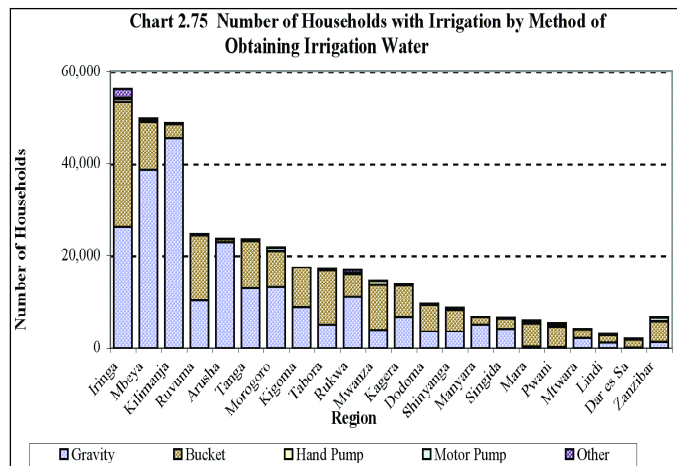
Canals are mostly used in Kilimanjaro (56% of households with irrigation in the region). Other regions in which over 23 percent of households with irrigation use canals as a source of irrigation water include Arusha, Tanga, Mbeya and Iringa.

Dams are not common as a source of irrigation water in Tanzania except in Tabora region where 43 percent of households obtain irrigation water from this source. Wells are important in Tabora, Dodoma, Mwanza and Iringa where they provide irrigation water to 41, 48, 34 and 20 percent of households with irrigation respectively. Lakes and pipe water are seldom used as sources of water for irrigation (Chart 2.73).

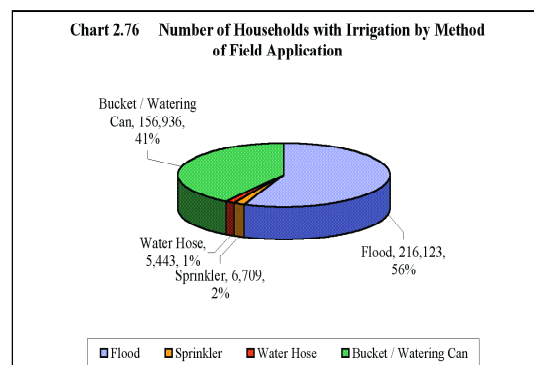


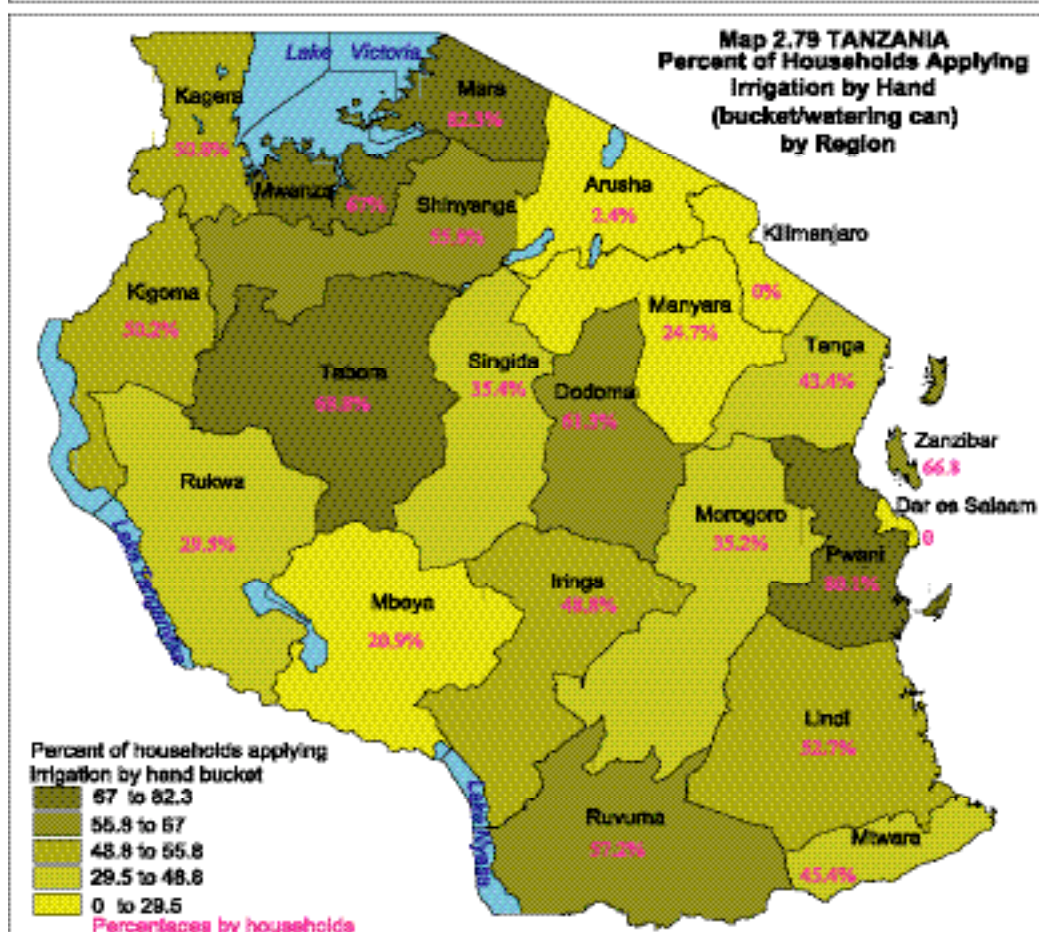
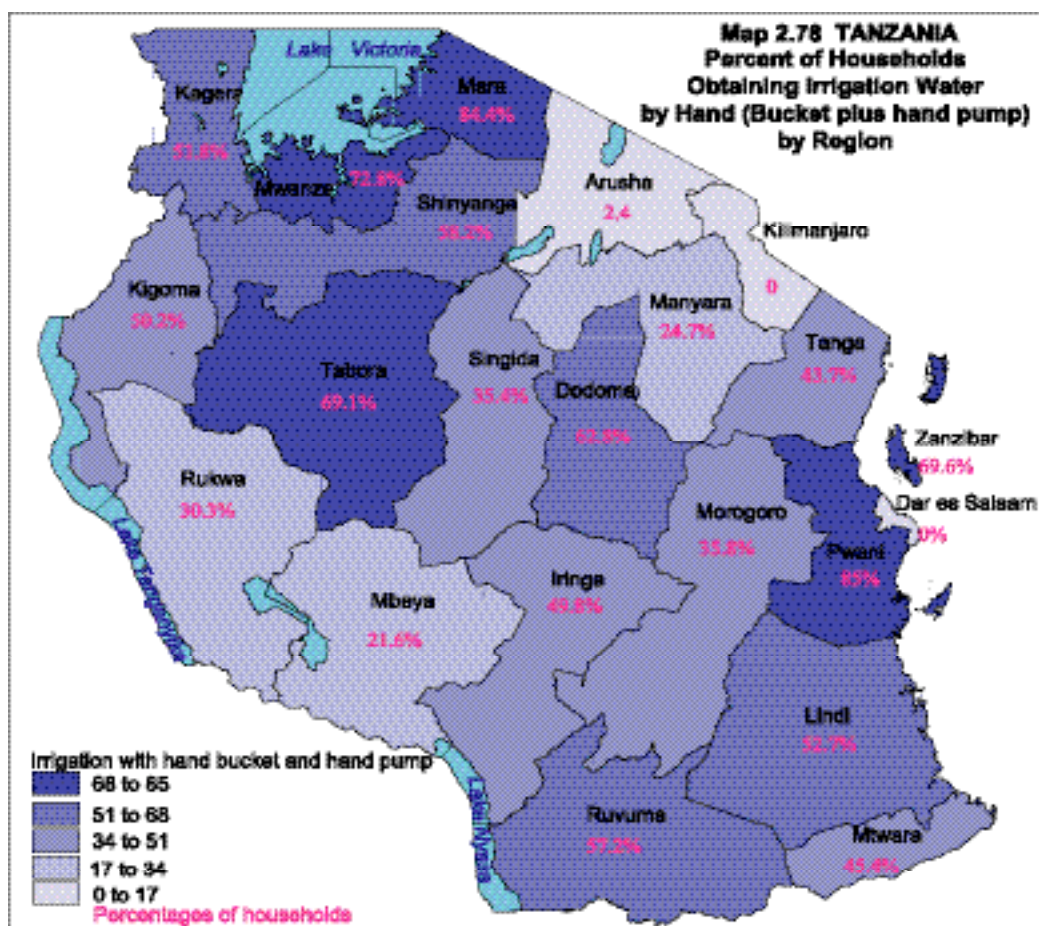
2.5.4 Methods of Obtaining Water for Irrigation

Gravity is the most common means of getting water for irrigation with 58 percent of households with irrigation using this method. This is closely followed by hand bucket with 39 percent of households. The remaining methods (hand pump, motor pump and other) are of minor importance (Chart 2.74).



In Iringa around 50 percent of the households with irrigation obtain irrigation water by gravity and bucket. Most households with irrigation in Kilimanjaro, Arusha and Mbeya obtain irrigation water by gravity (94%, 97% and 77% respectively). Buckets are more common in Dar es Salaam region where 82 percent of households use this means to get water for irrigation, followed by Mara (82%), Pwani (80%), Tabora (68%), Mwanza (67%), Dodoma (61%), Ruvuma (57%), Shinyanga (56%) and Lindi (53%) regions, however many of these regions have small numbers of households and real differences may not exist (Chart 2.75 and Map 2.78)).

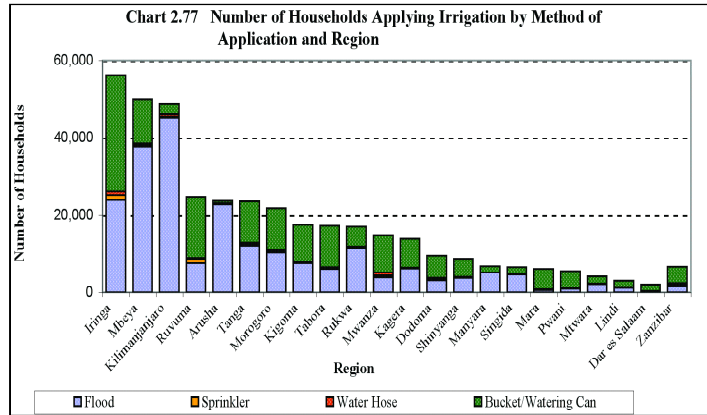




2.5.5 Method of Water Application

Most households use flood irrigation (56% of households using irrigation). This is closely followed by hand bucket/watering can (41%). Sprinklers and water hose are not often used (2% and 1% respectively) (Chart 2.76).

In Iringa, the irrigation application method is split almost equally between flood and bucket/watering can with 54 percent of households applying by bucket/watering can and 42 percent by flood.



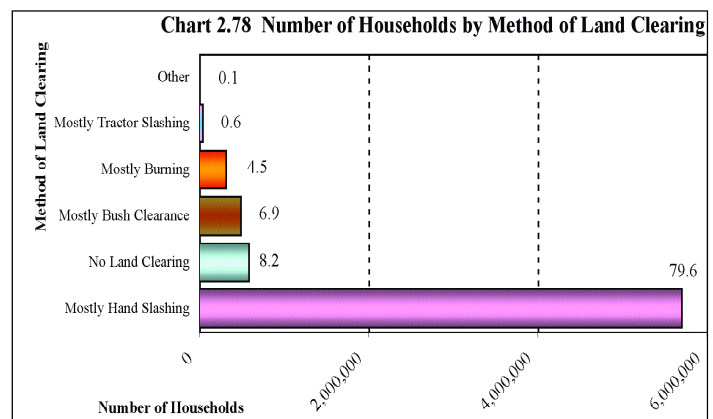
In Arusha, Kilimanjaro, Mbeya, Singida, Rukwa and Manyara most households with irrigation use flood irrigation (97, 92, 75, 71, 67 and 75 percent respectively). A small number of households use sprinklers in Iringa and Ruvuma (Chart 2.77 and Map 2.79).

2.6 Husbandry Practices/Input Use

This section deals with input use for annual crops only. The sub-sections on land clearing, soil preparation and use of improved seed excludes a small amount of data due to the reporting of some cassava in the permanent crop section of the questionnaire. The permanent crop section did not collect information on these variables.

2.6.1 Land Clearing

Land clearing is divided into two categories: bush clearing, which by definition implies either expansion into virgin areas or into areas which have been left fallow for a long period. The other category, which includes burning, hand slashing or tractor slashing, is normally an annual clearing exercise to remove vegetation growth from the previous season.



Hand slashing is the most widespread method used for land clearing. The area cleared by hand slashing in Tanzania was 5,670,779 ha which represents 79.6 percent of the total planted area. Bush clearance, burning and tractor slashing are less important methods for land clearing and they represent 6.9, 4.5 and 0.6 percent respectively (Chart 2.78 and Table 9).

The largest planted area cleared by hand is in Shinyanga. It also has the largest planted area of bush cleared land. Regions with the largest amount of planted area that has not been cleared are Arusha, Kilimanjaro, Tanga and Morogoro. In these regions some of the land is usually bare before cultivation due to livestock grazing and therefore land clearing is not necessary. A greater planted area is cleaned by burning in Dodoma than

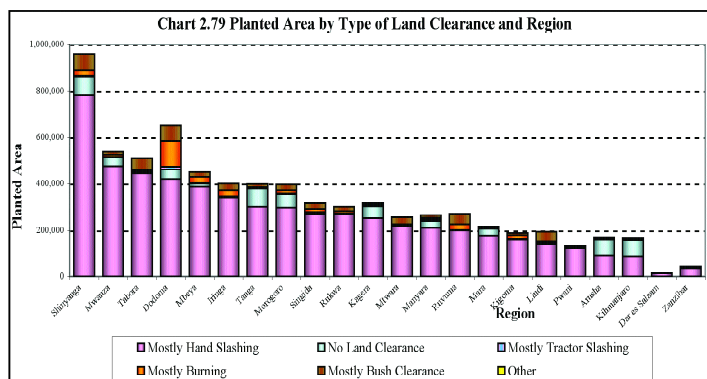
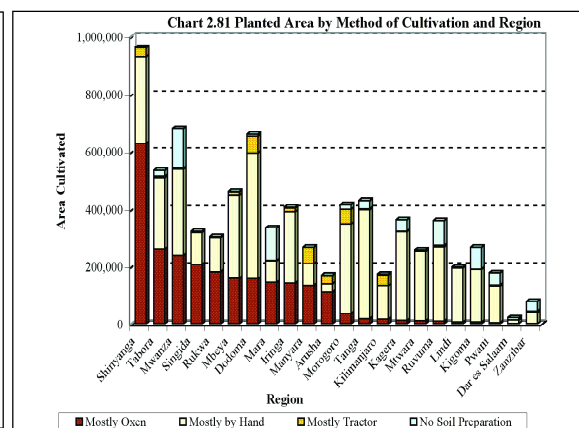
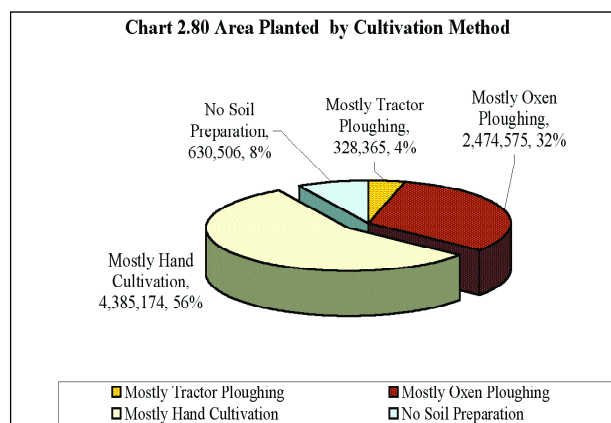


Table 2.10 Land Clearing Methods

Method	Short rainy season			Long rainy season			Total		
	Number of Households	Planted Area	%	Number of Households	Planted Area	%	Number of Households	Planted Area	%
Bush Clearing	48,325	45,057	3.1	275,922	446,289	7.9	324,248	491,327	6.9
Hand Slashing	1,271,329	1,185,363	81.7	3,150,761	4,485,417	79.1	4,422,690	5,670,779	79.6
Tractor Slashing	5,248	5,723	0.4	21,858	38,547	0.7	27,106	44,270	0.6
Burning	30,934	29,456	2.0	187,838	289,314	5.1	218,772	318,771	4.5
No Land Clearing	231,071	177,087	12.2	324,003	409,741	7.2	555,074	586,829	8.2
Other	30,730	8,198	0.6	626	740	0.0	31,356	8,938	0.1
Total		1,450,865	100.0		5,670,048	100.0		7,120,914	100.0

2.6.2 Methods of Soil Preparation

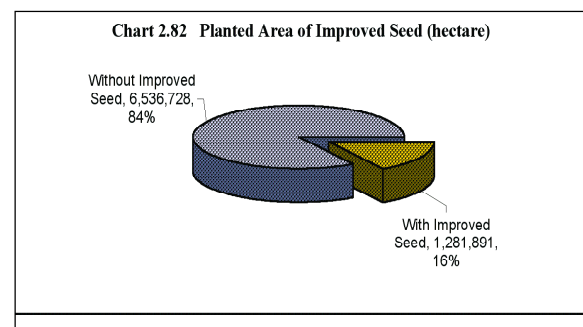
Cultivation by hand is the most common method of soil preparation with an area of 4,385,175 ha representing 56 percent of the total planted area. This is followed by oxen ploughing with 2,474,575 ha (32% of the total area planted) and tractor ploughing with 328,365 ha (4%) (Chart 2.80). No soil preparation mainly refers to cassava that was recorded as a permanent crop under which this variable was not recorded. However, one may assume that the majority of this is by hand.

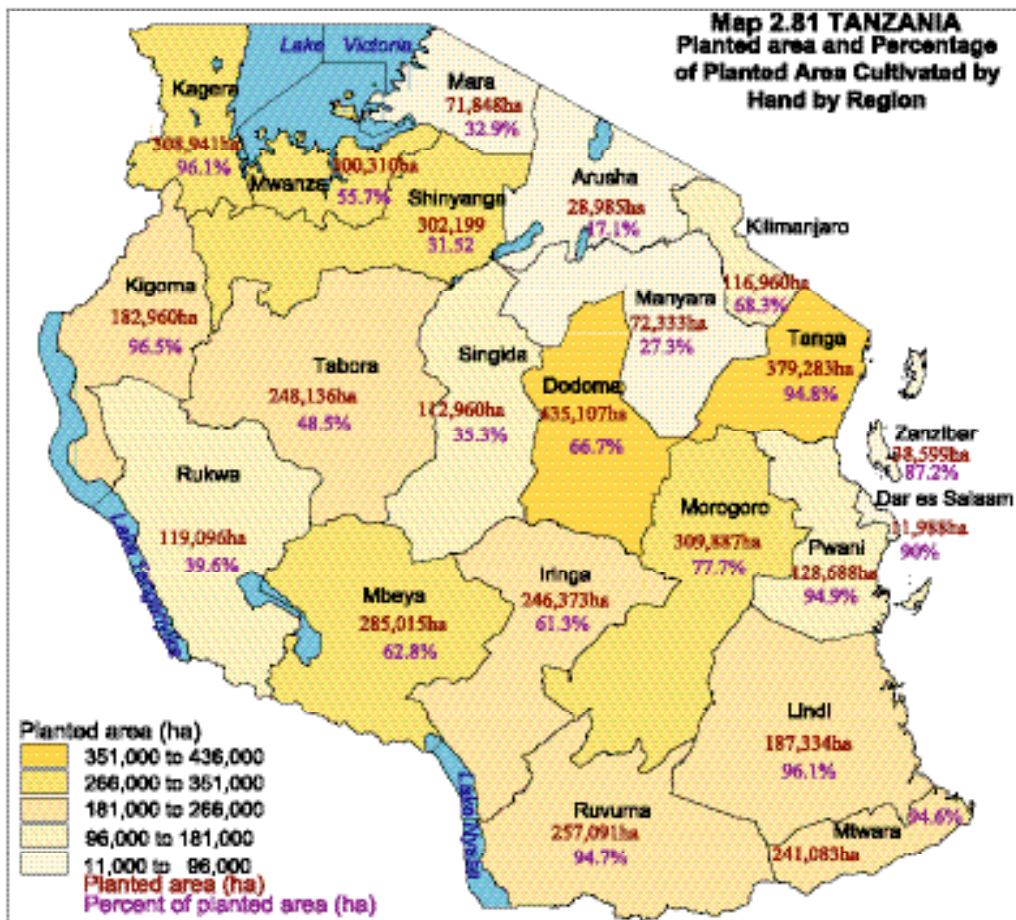
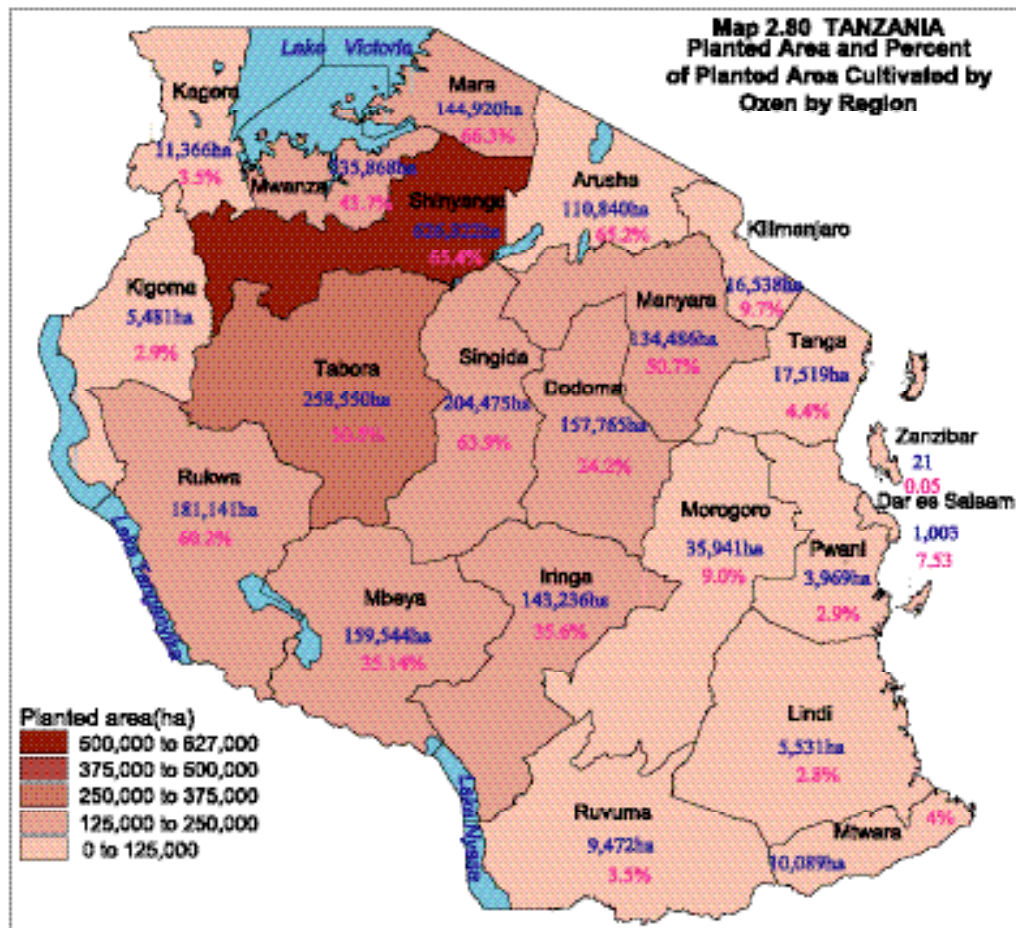


In Coastal regions plus Kigoma, Ruvuma, Kagera, Kilimanjaro and Morogoro regions, almost all land is cultivated by hand. The largest planted area is in Shinyanga and two thirds of this is cultivated by oxen. In Arusha, Manyara, Singida and Rukwa more than half of the planted area was cultivated by oxen. In Tabora and Mwanza regions, about a half of the planted area was cultivated by oxen. Tractor ploughing is mostly used in Kilimanjaro region (22.1% of the total planted area in Kilimanjaro), followed by Manyara (22%), Arusha (17.7%), Morogoro (13.3%) and Zanzibar (12.8%) regions. In other regions tractor ploughing is virtually absent. Oxen ploughing is not used in Zanzibar, Dar es Salaam and Pwani regions and very little is used in Kigoma, Lindi, Ruvuma, Mtwara, Kagera, Kilimanjaro, Tanga and Morogoro regions (Chart 2.81 and Map 2.80 and 2.81).

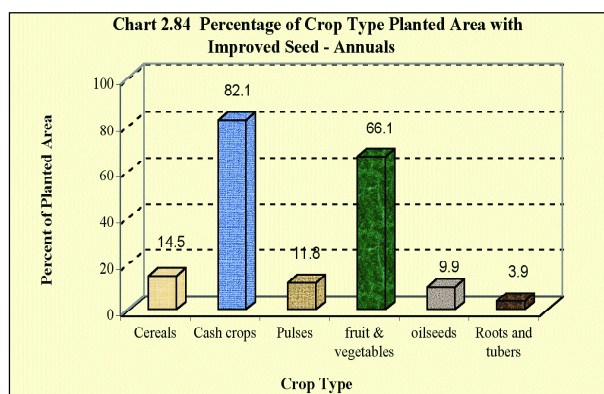
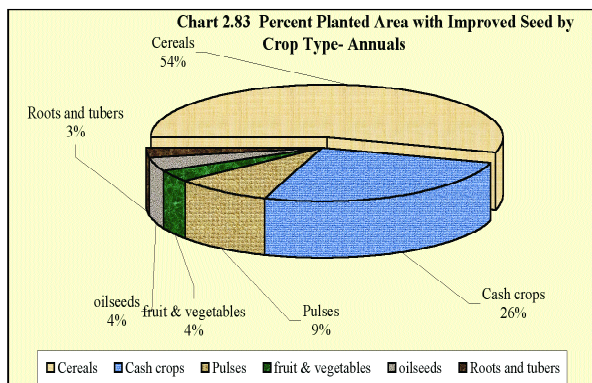
2.6.3 Improved Seeds Use

The planted area using improved seed is 1,281,892 hectares (1,267,844 ha on the Mainland and 14,047 in Zanzibar), representing 16 percent of the total planted area (Chart 2.82). There is little difference in the percent of planted area that used improved seed between the long and short rainy seasons.





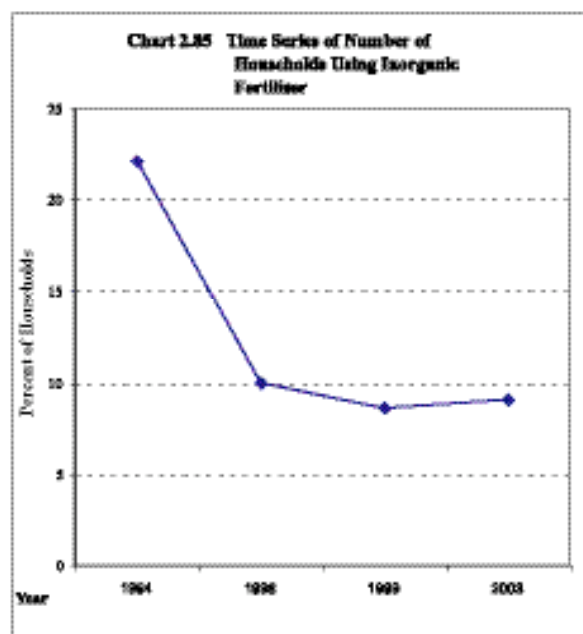
Cereals have the largest planted area with improved seeds (693,817 ha, 54%), followed by cash crops (325,032 ha, 26%), Pulses (110,411 ha, 9%) fruit and vegetables (45,9336 ha, 4%), oilseeds (52,902 ha, 4%) and roots and tubers (39.750 ha, 3%) (Chart 2.84). However, the percent of improved seed use in cash crops and fruit is much greater than in other crop types (82% and 66% respectively). Only 11 percent of cereal crops use improved seed (Chart 2.85).



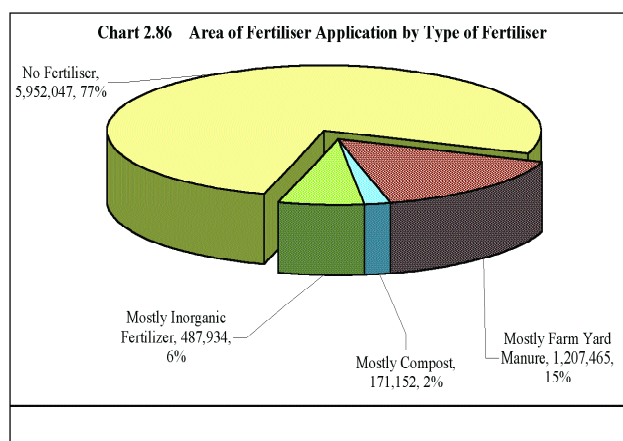
2.6.4. Fertiliser Use

The results in this section are based on use and area of application and not on the quantity applied. Considering the comparatively large area of farm yard manure application compared to inorganic fertiliser application it is expected that rate of application is well below optimal.

Most annual crop growing households do not use any fertiliser (Map 2.82). The number of households using fertilisers has decreased dramatically since the last census and this is the case for both inorganic fertiliser and farm yard manure. Chart 2.85 shows that the reduction in the number of households using fertilisers happened during the period 1995 to 1998 with the number of households using fertilisers remaining constant at this very low level since then. The order magnitude of this decline is around 50 percent for both organic and inorganic fertiliser. Both decline has been with compost/manure as opposed to inorganic fertilisers, however the status of fertiliser use as of 2003 is that only 8 percent of crop growing households use inorganic fertiliser whereas 20 percent use farm yard manure.



The area planted without fertiliser for annual crops is 5,952,048 hectares (5,884,799 ha on the mainland and 59,396 ha in Zanzibar) representing 77 percent of the total planted area with annual crops. Of the planted area with fertiliser application (23%), Farm Yard Manure was applied to 1,207,465 ha which represents 15 percent of



the total planted area or 64 percent of the area planted with fertilisers. This is followed by inorganic fertiliser (487,934 ha, 6%). Compost is used on a very small area and represents only 2 percent of the total planted area (Chart 2.86 and Table 2.11).

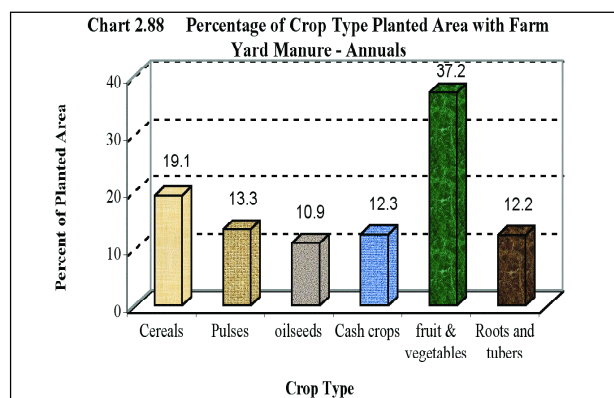
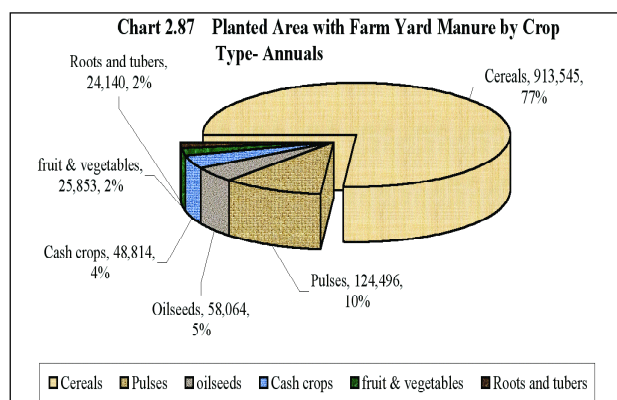
Table 2.11 Number of Households and Area of Application by Fertiliser Type

Type of Fertiliser	Type of Crop	Mainland			Zanzibar			Total		
		Number of Households	Area Applied	% of Total Planted Area	Number of Households	Area Applied	% of Total Planted Area	Number of Households	Area Applied	% of Total Planted Area
Farm Yard Manure	Annual Crops	979,007	1,202,766	15.54	10,418	4,699	6.00	989,425	1,207,465	15.51
	Permanent Crops		243,581	18.34	91,824		0.00	91,824	243,581	17.75
	Total		1,446,347	15.95	102,242	4,699	0.04	102,242	1,451,046	18.40
Compost	Annual Crops	164,400	169,993	2.20	2,805	1,159	11.54	167,205	171,152	2.30
	Permanent Crops		55,265	4.16			0.00	0	55,265	4.03
	Total		225,258	2.48		1,159	0.07	0	226,417	2.97
Inorganic Fertiliser	Annual Crops	443,099	482,786	6.24	9,782	5,149	6.58	452,881	487,935	6.27
	Permanent Crops		42,538	3.20			0.00	0	42,538	3.10
	Total		525,324	5.79		5,149	0.04	0	530,473	6.73
Total Applied Area	Annual Crops	1,586,506	1,855,545	23.97	23,005	11,007	24.12	1,609,511	1,866,552	24.08
	Permanent Crops	0	341,383	25.71	91,824	0	0.00	91,824	341,383	24.88
	Total	0	2,196,928	24.23	0	11,007	0.15	0	2,207,936	28.09
No Fertiliser	Annual Crops	4,008,611	5,884,799	76.03	78,318	67,270	75.88	4,086,929	5,952,068	76.36
	Permanent Crops		986,528	74.29			0.00	0	986,528	71.89
	Total		6,871,327	75.77		67,270	0.00	0	6,871,327	87.11

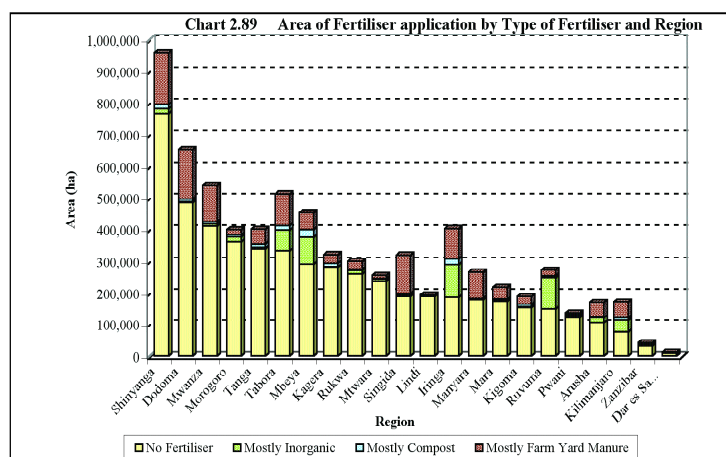
Most of the planted area with permanent crops are without fertiliser (986,528 ha, 75%). On the Mainland, the area of permanent crops with fertiliser follows the same trend as annual crops with only 341,383 ha with applied fertiliser representing 25.7 percent of the total area planted with permanent crops. This is followed by compost (55,265 ha, 4%) and then inorganic fertiliser (42,538 ha, 3%) (Table 2.10). Most of the fertiliser used in permanent crops is applied to bananas (34.6% of the total area using fertiliser), followed by coffee (29.8%), cassava (13.2%) and cashew nuts (5.3%) and most of this is organic fertiliser.

Farm Yard Manure

The number of households using farm yard manure on their annual crops is 989,425 and it is applied to 1,207,465 ha representing 16 percent of the total area planted (Table 2.10). Use of farm yard manure on crop types is presented for the mainland only. Most of the farm yard manure is used on cereals (77%), followed by pulses (10%) and oil seeds (5%) (Chart 2.87). However, the proportion of fruit and vegetables with farm yard manure application is higher than other crop types (37%), followed by cereals (19%) and roots and tubers (16%) (Chart 2.88).

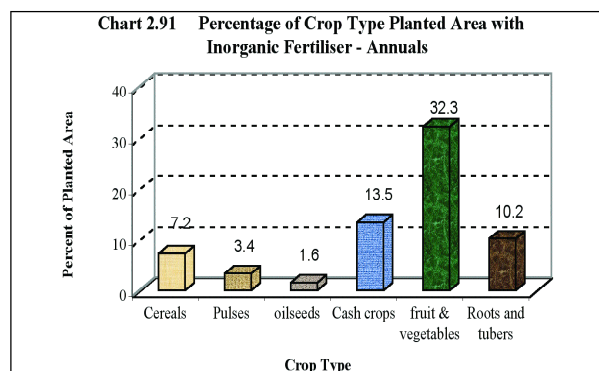
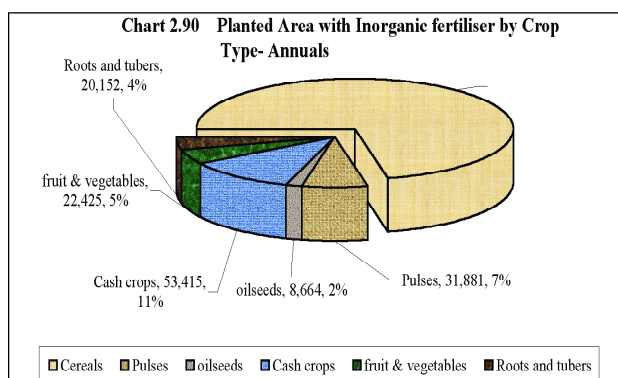


Farm yard manure is mostly used in Singida region (38% of the total planted area), followed by Manyara (31%), Kilimanjaro (30%), Arusha (28%), Dodoma (24%), Iringa (23%), Mwanza (21%), and Dar e Salaam (19%) regions. Very little farm yard manure is used in Lindi, Pwani, Mtwara and Morogoro regions (Chart 2.89, Map 2.83). As would be expected, with the exception of Arusha, more than 74 percent of the total area of applied farm yard manure are in regions with most livestock. For permanent crops most farm yard manure is used for the production of banana (37.9%), followed by coffee (29%) and cassava (14%).



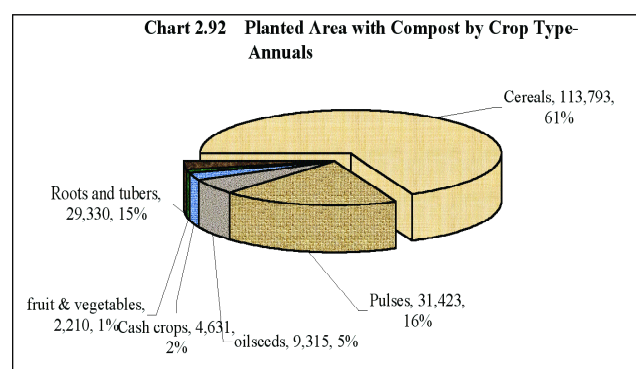
Inorganic Fertiliser

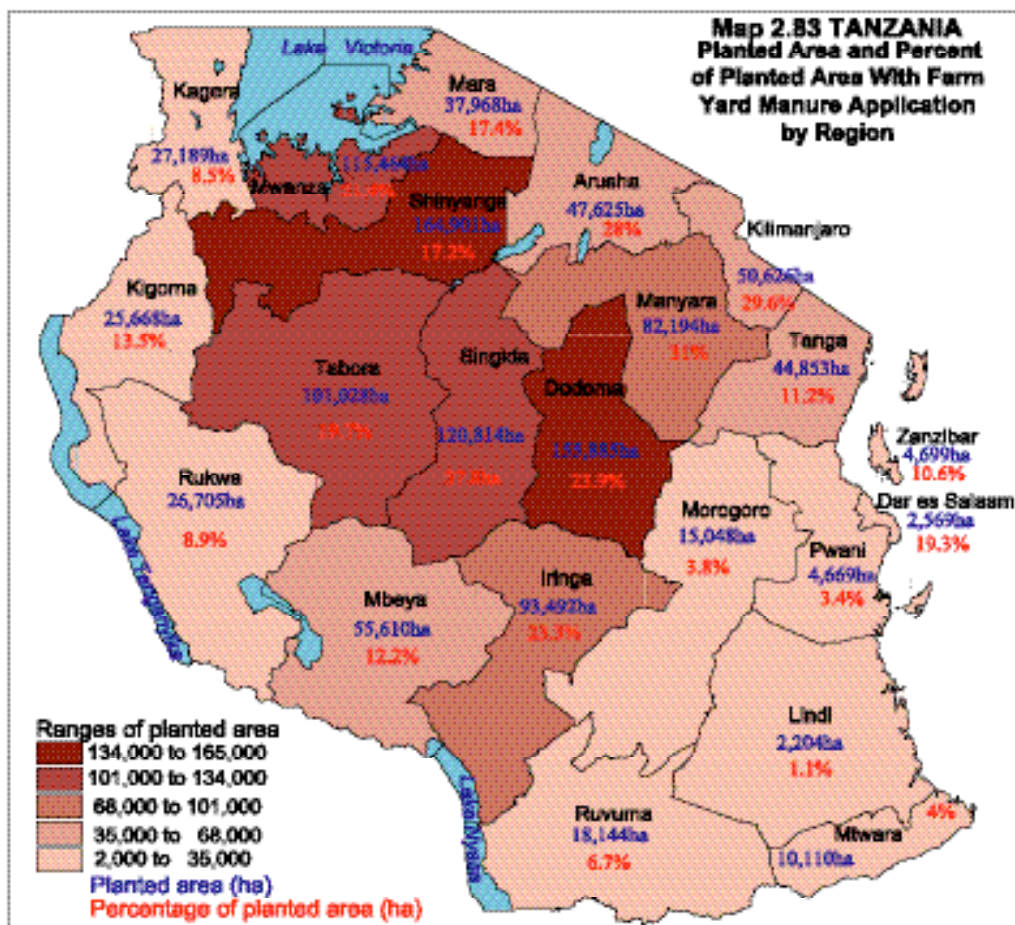
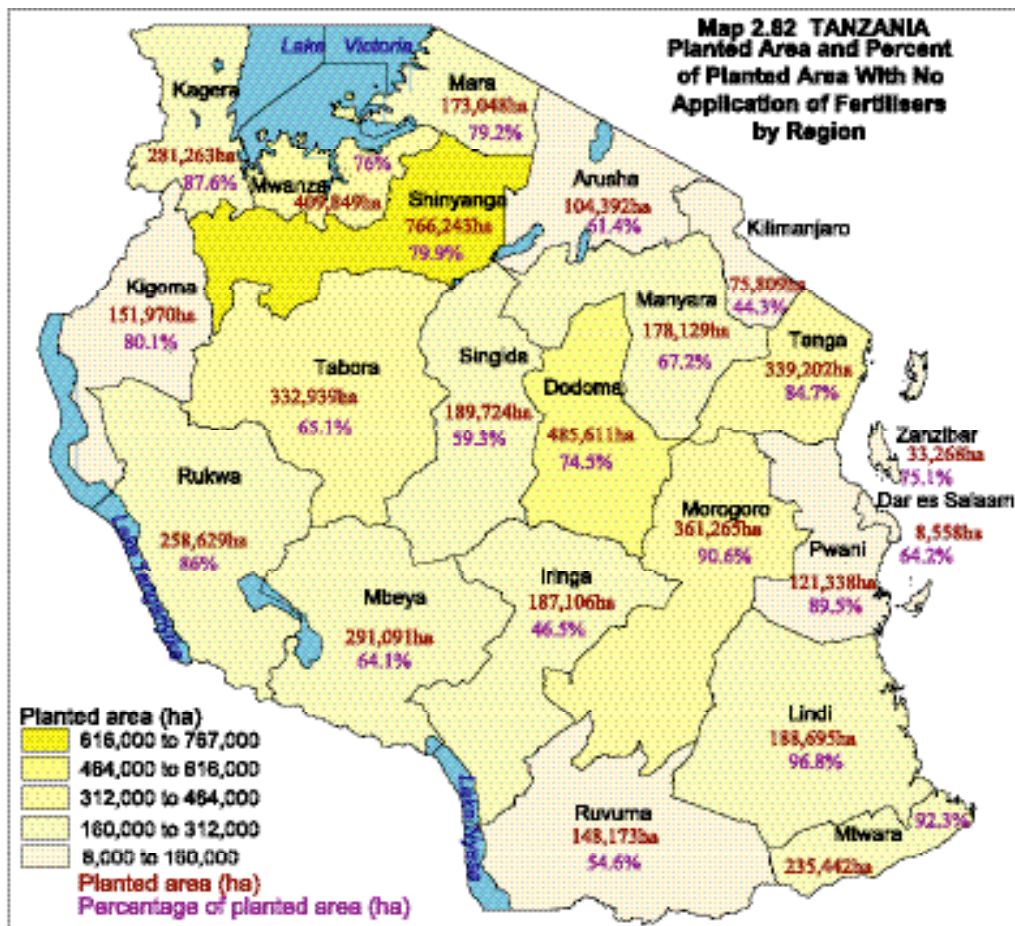
The number of households using inorganic fertiliser on annual crops is 452,881 (443,099 on the mainland and 9,782 in Zanzibar) and it is applied to 487,935 ha representing 6 percent of the total area planted (Table 2.10). Most of it is applied to cereals (71%), followed by cash crops (11%) and pulses (7%) (Chart 2.90). However, as is the case with farm yard manure, a higher proportion of inorganic fertiliser is applied to fruit and vegetables than other crop types (32% of the fruit and vegetables planted area). This is followed by cash crops (13%) and roots and tubers (9%) (Chart 2.91). Inorganic fertilisers are used mostly in Ruvuma (37% of the total planted area), followed by Iringa (26%), Kilimanjaro (22%), Mbeya (18%) and Tabora (13%) regions. Most other regions use very little inorganic fertiliser (Chart 2.89 and Map 2.84). In permanent crops, inorganic fertiliser is mostly used on coffee (56.5%), followed by cashew nut (10.4%), cassava (8.24%), sugar cane (7.79%) and banana (6.28%).

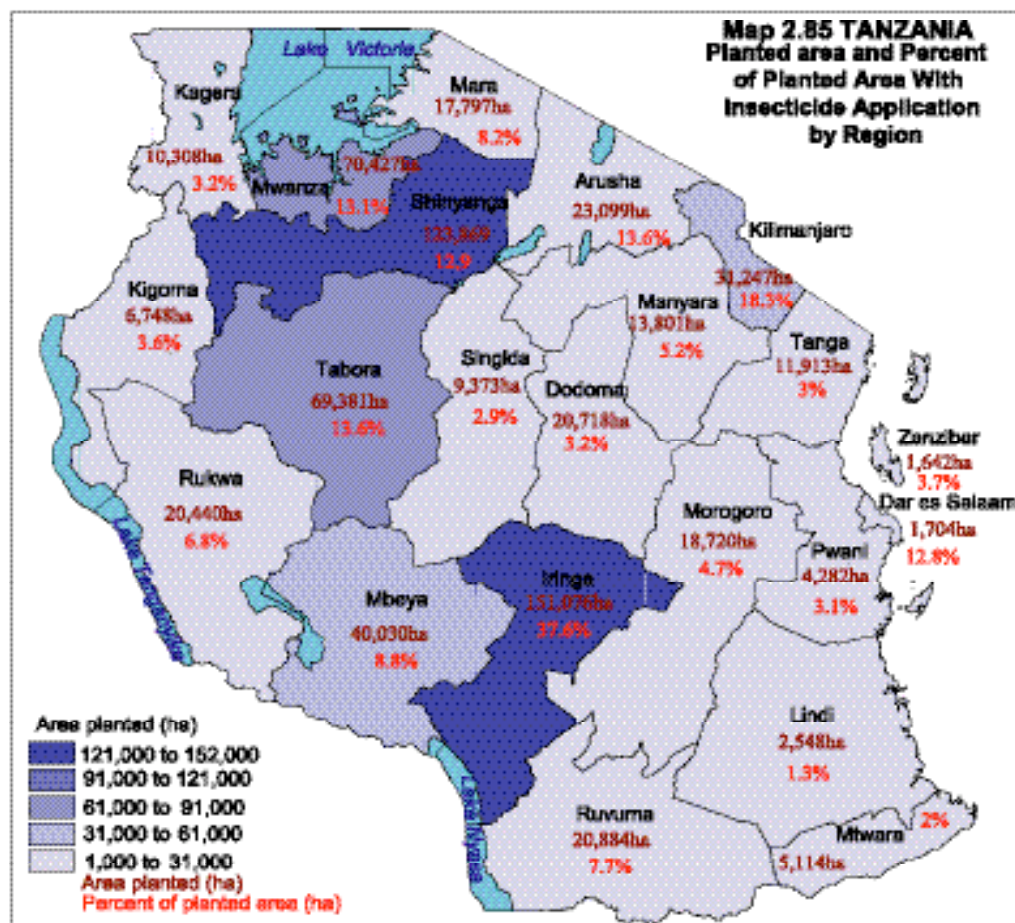
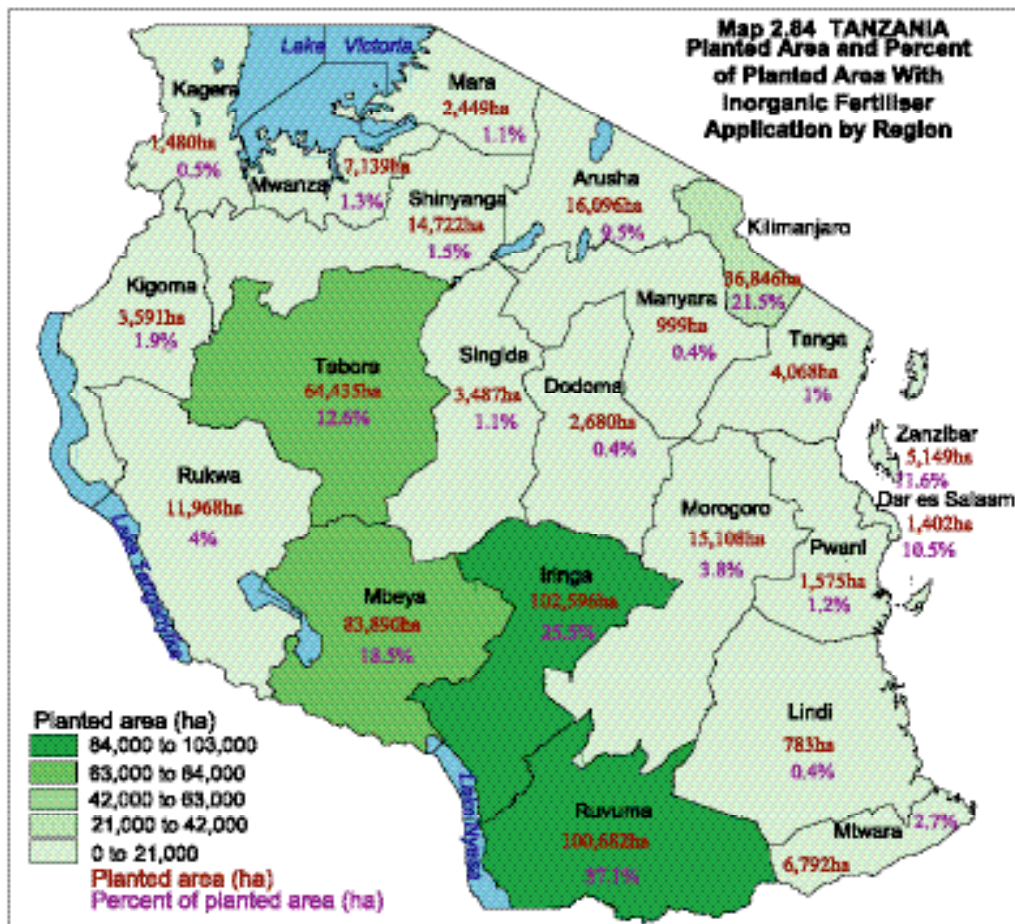


Compost

The number of households using compost is 167,205 and it is applied to 171,157 ha (169,993 on the Mainland and 1,159 in Zanzibar) representing 2 percent of the total area planted (Table 2.10). The area of application is very low for each type of crop (2 to 3%), however, the distribution of the total area using compost shows that 68 percent of this area is cultivated with cereals, followed pulses (19%) and oil seeds and oil nuts (6%).





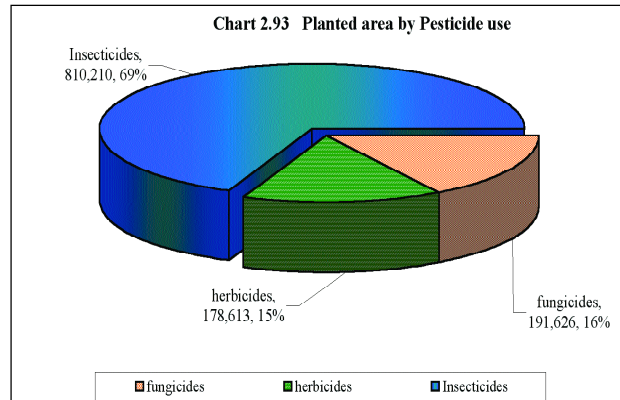


In permanent crops, compost is mostly used on banana 38.93%), cashew nut (15.5%), coffee (15.3%) and cassava (13.1%).

2.6.5 Pesticide Use

Pesticides are chemicals which are used for controlling insects, diseases and weeds on crops. This section analyses the use of these chemicals by smallholders on both annual and permanent crops in Tanzania.

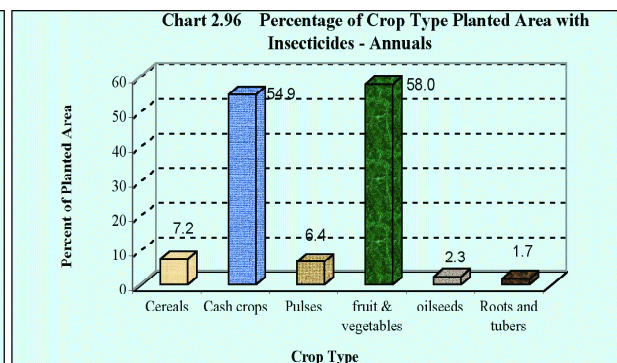
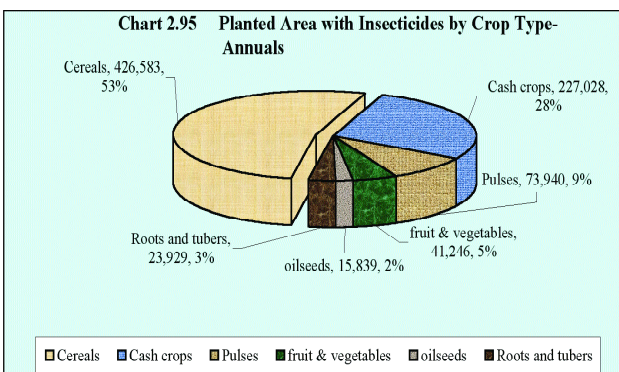
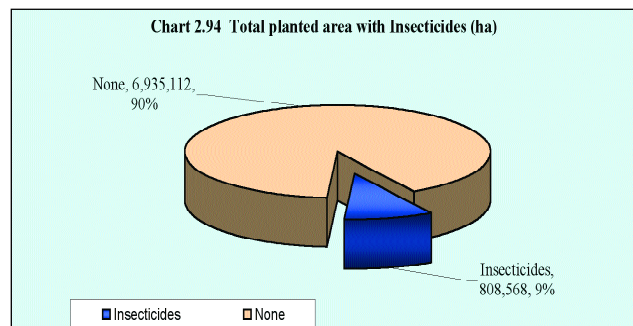
For Annual crops, pesticides are applied to 1,180,450 ha (1,176,694 ha on the Mainland and 3,756 ha in Zanzibar) (Note that this is application area. In some cases all three chemicals are applied to the same crop, so the planted area with pesticides will be much less than this figure).



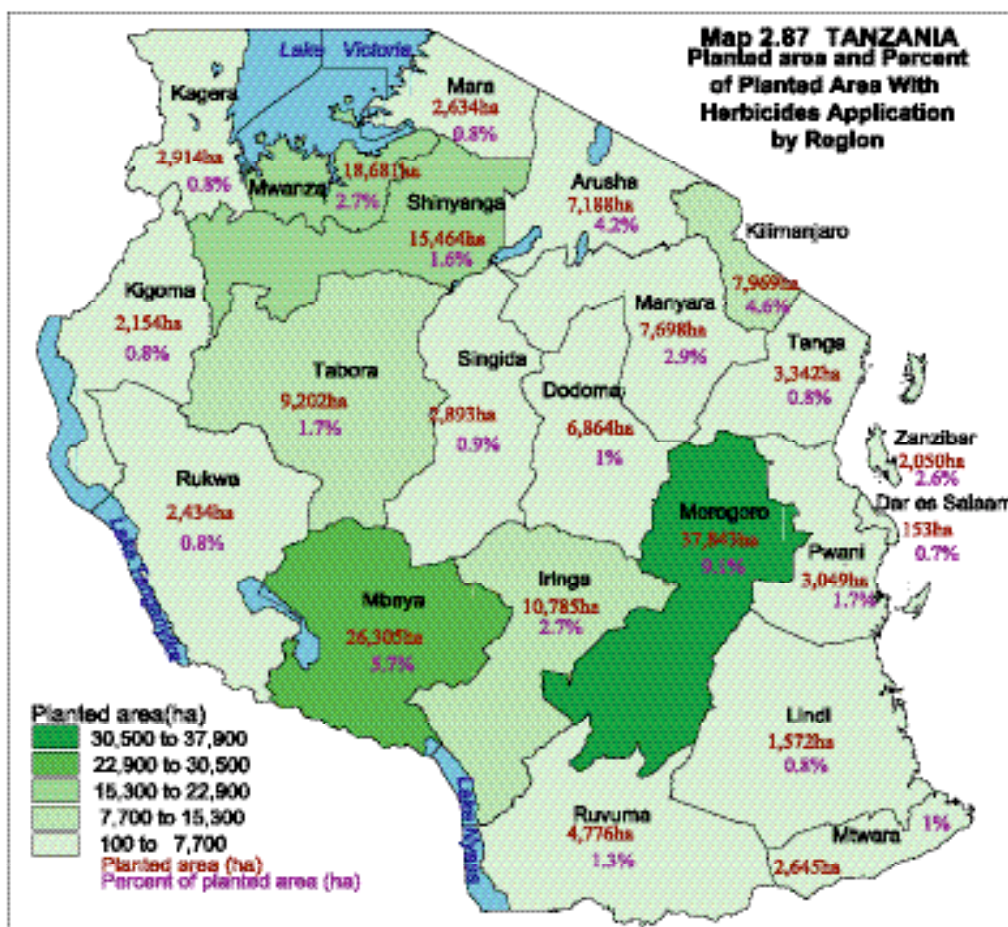
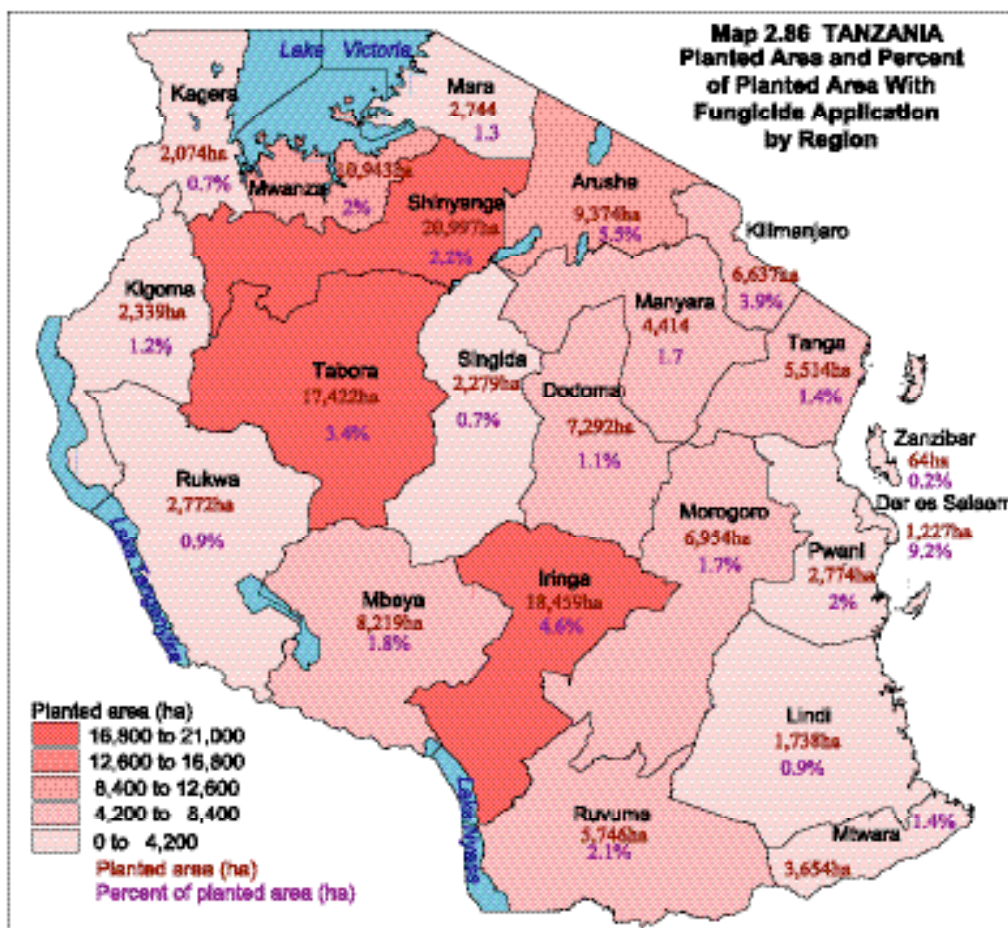
Insecticides are the most common pesticide used in Tanzania (72% of the total applied area with pesticides). This is followed by fungicides (15%) and herbicides (13%) (Chart 9.83).

Insecticide

Unless otherwise stated, the results in this section are presented for the mainland only. Insecticides are applied to 810,211 ha (only 9% of the total planted area) (808,569 on the Mainland and 1,642 in Zanzibar) (Chart 2.94). In terms of total planted area with insecticides application, more insecticides are used on cereals than other crop types (426,584 ha, 53%). This is followed by cash crops (227,029, 28%), pulses (73,940, 9%) and fruit and vegetables (41,247, 5%) (Chart 2.95). However, in terms of insecticide use by crop type, fruit and vegetables and cash crops receive a higher percent of insecticide than other crops. Of the total area planted with fruit and vegetables, 59 percent received insecticides and for cash crops is 57 percent.



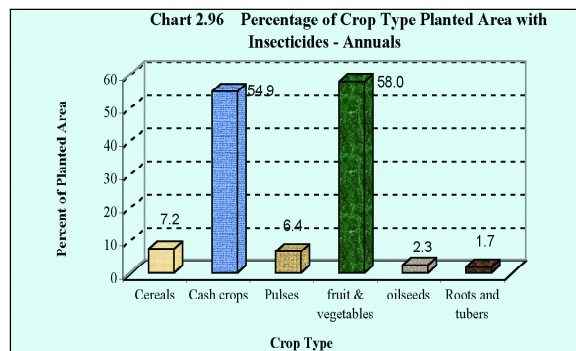
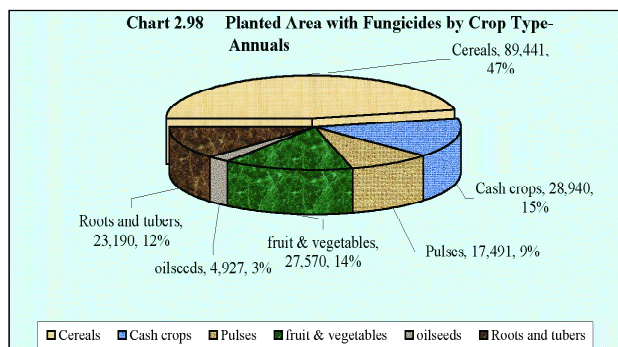
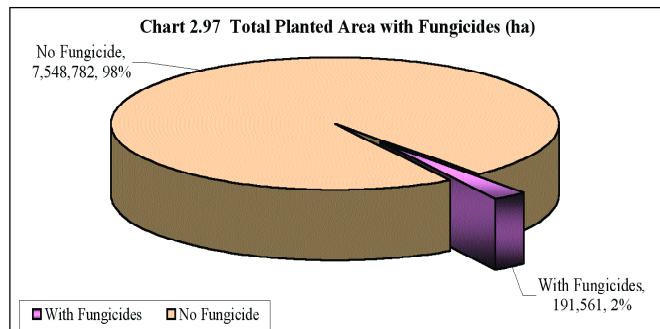
Large regional differences exist. Iringa and Shinyanga have the greatest planted area with applied insecticide (175,130 ha, 43% of the total planted area in the region and 145,273 ha, 15% respectively), followed by Kilimanjaro (19%), Arusha (16%), Tabora (6%), Mwanza (12%), Mbeya (19%) and Rukwa (9%) (Map 2.85).



Fungicide

Fungicides are rarely used on annual crops in Tanzania with an applied planted area of only 191,626 hectares (191,562 ha on the Mainland and 64 in Zanzibar) representing 2 percent of the total planted area (Chart 2.98).

In terms of total planted area more fungicides are used on cereals than other crop types (89,441 ha, 47%). This is followed by cash crops (28,940 ha, 15%), fruit and vegetables (27,571 ha, 15%) and roots and tubers (23,191ha, 12%) (Chart 2.86). However, of the total area planted with fruit and vegetables 40 percent received insecticide applications (Chart 2.87). The percent planted area with fungicide

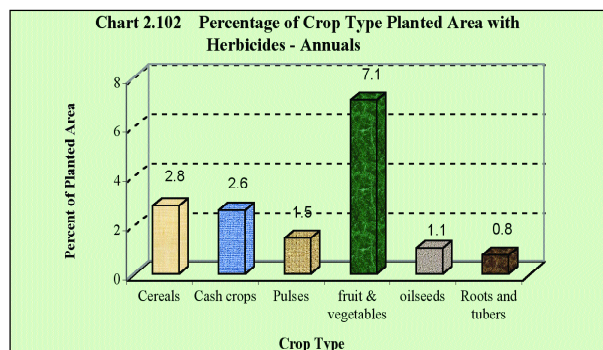
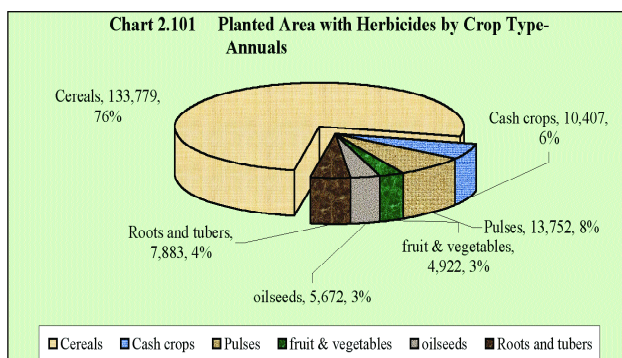
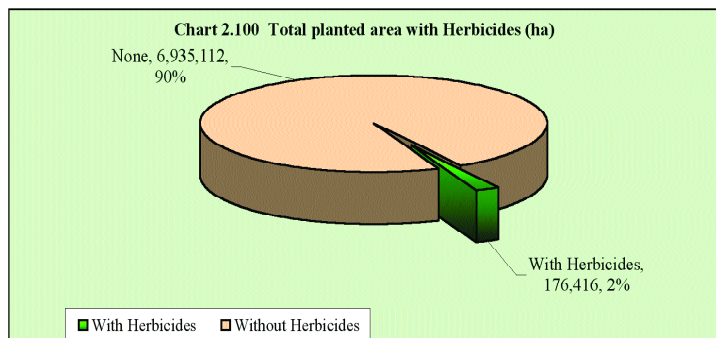


application for other crop types was very low.

The regions with the largest planted area with fungicides were Shinyanga (27,060 ha, 3% of the planted area in the region), Iringa (22,214 ha, 5%), Tabora (20,484 ha, 4%) and Mwanza (18,280 ha, 3%). Very little fungicide was applied in Zanzibar (Map 2.86).

Herbicide

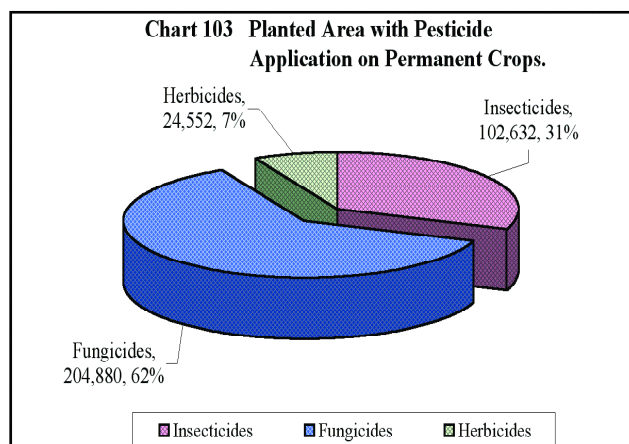
Herbicides were the least used pesticide in Tanzania with an applied planted area of only 178,613 ha (176,563 ha on the Mainland and 2,050 in Zanzibar) representing 2 percent of the total planted area (Map 2.87). In terms of total planted area more herbicides are used on cereals than other crop types (133,779 ha, 75% of the total planted area with herbicide application). This is followed



by pulses (13,752 ha, 8%) and cash crops (10,407, 6%) (Chart 2.86). Very little was applied to other crop types. Of the total area planted with fruit and vegetables only 7 percent received herbicide application (Chart 2.87) and the percent planted area with herbicide application for other crop types was very low.

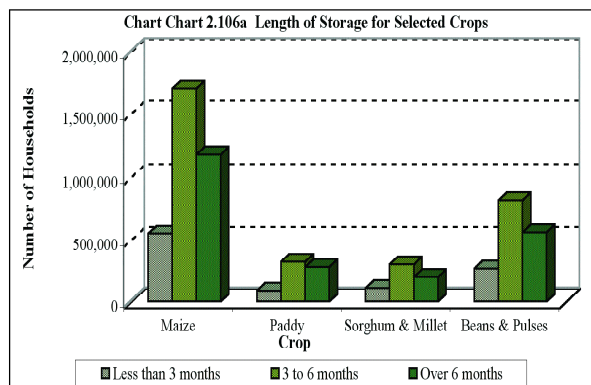
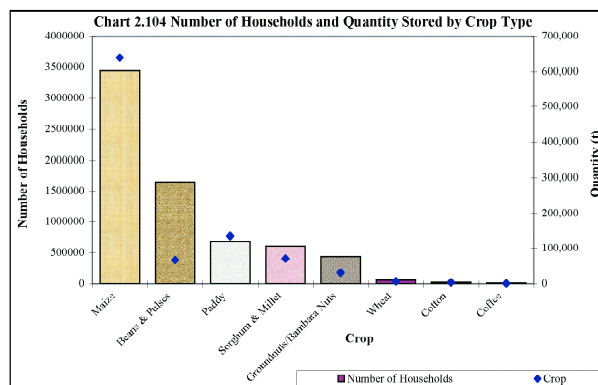
Pesticide Use on Permanent Crops

The use of fungicides, herbicides and insecticides on permanent crops is very low. However, smallholders that used pesticides applied more fungicides (204,880 ha, 62% of the total planted area with pesticides) than insecticides (102,632 ha, 31%) and herbicides (24,553 ha 7%) (Chart 103). Fungicides are mainly used on cashew nut (75% of the total area planted with permanent using pesticide). Herbicides are mostly used on coffee (45%), cashew nut (18%) and cassava (13%). Whilst insecticides are mostly used on coffee (61%) and cashew nut (24%).

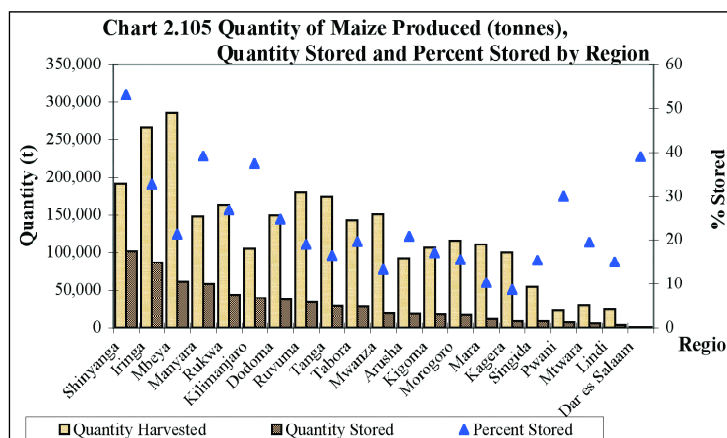


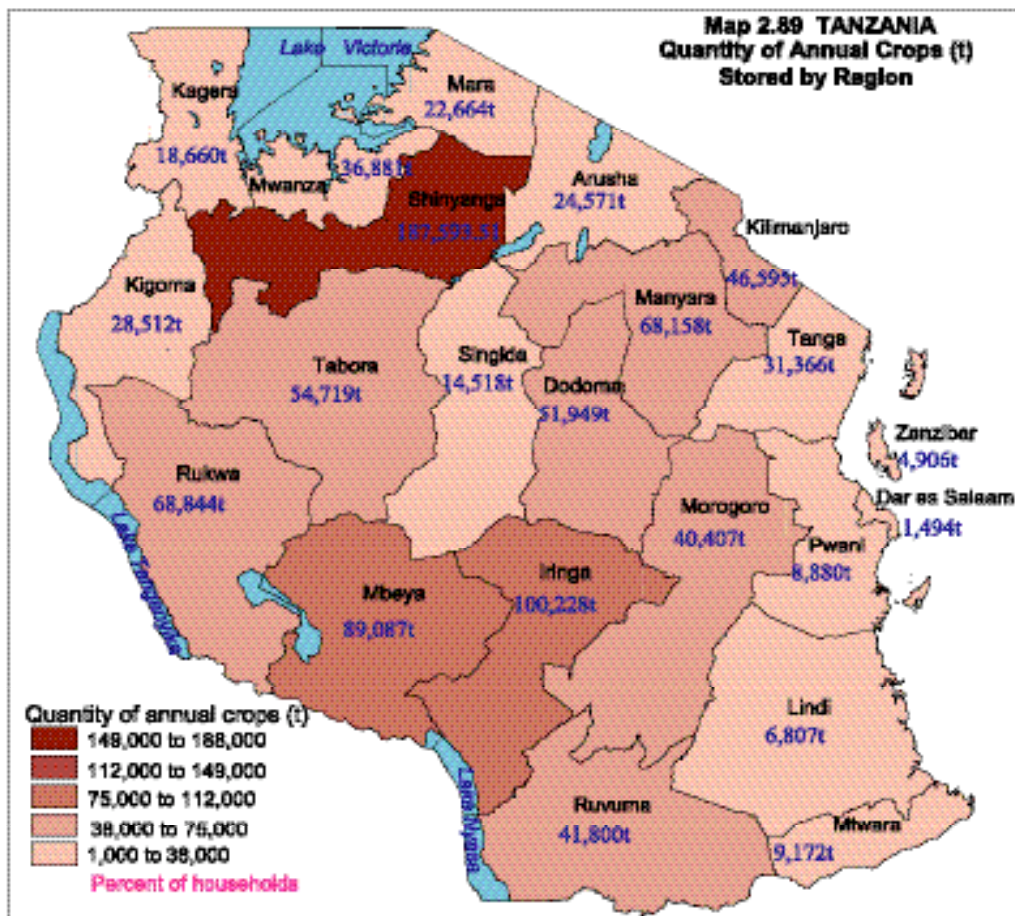
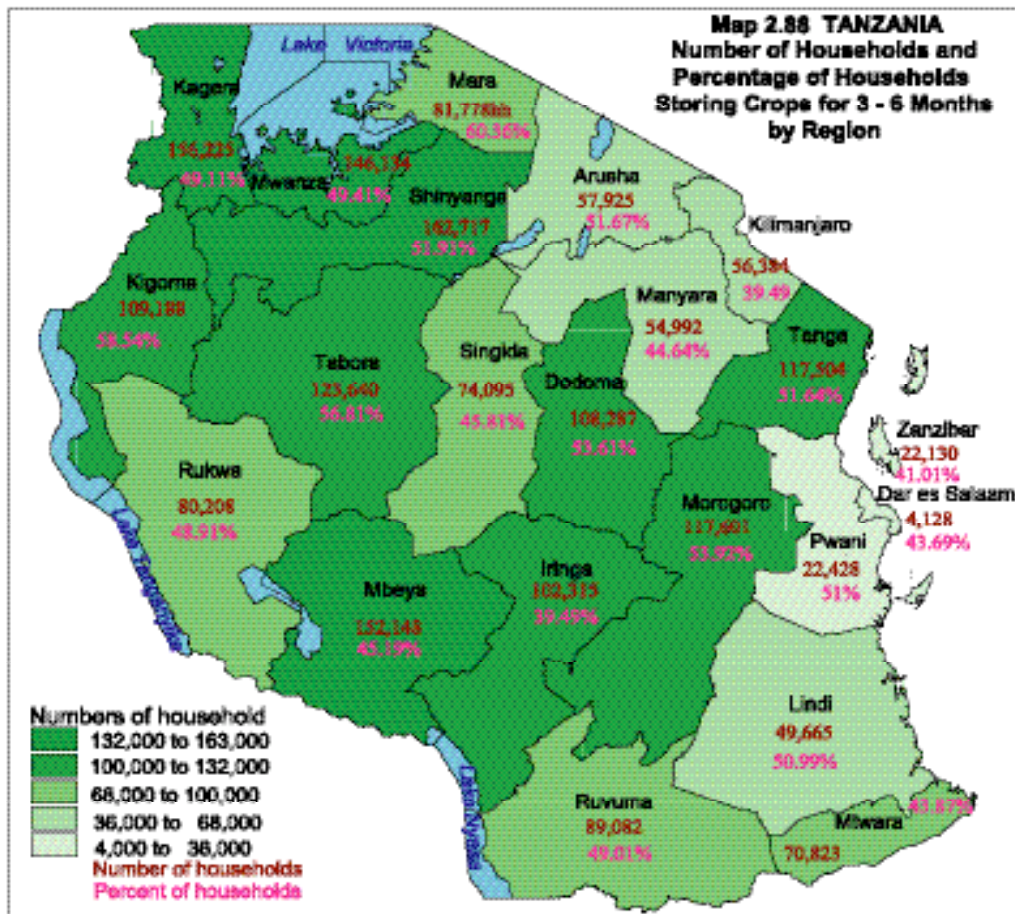
2.7 Crop Storage

Crop growing households store crops for household food security and for seed for the following planting period. The number of households that store maize as of 1st October 2003 was 3,444,974 maize and had a stored quantity of 638,319 tonnes. This is followed by paddy (682 535 households and 135,614 tonnes), beans and pulses (1,647,082 households and 66,999 tonnes), sorghum and millet (606,496 households and 70,920 tonnes) and groundnuts with 440,029 households and 29,723 tonnes. Very minor amounts were stored for the remaining crops. Cash crops, cotton, tobacco, coffee and cashew nuts are mainly produced for direct sale and are not normally stored on farm(Chart 104).



In the following sections on storage the analysis will be based on the number of households storing maize only as it is the most stored crop in Tanzania.

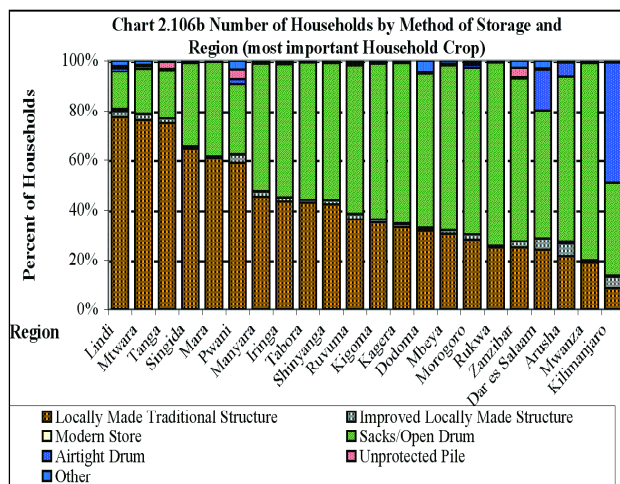




2.7.1 Storage Period

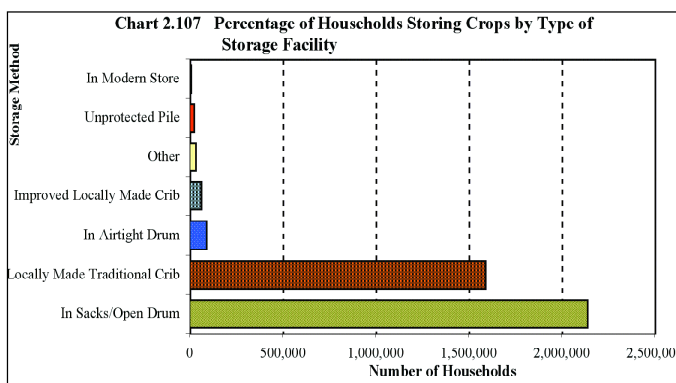
The most common storage period for crops is 3 to 6 months. This is closely followed by a storage period of over 6 months. The least common period of storage is less than 3 months. The pattern in terms of length of storage is more or less the same for both maize and pulses (Chart 2.105 and Map 2.88).

Regional comparison of duration of storage cannot be done for all crops combined. However, chart 2.106a provides details for maize and the analysis will be done for this crop only as it is the most commonly stored crop. In general, quantity stored is related to the quantity produced. Regions with greater production have a higher percent of their crop stored as on 1st October 2003, however some of these regions (Mbeya and Iringa) use proportionately more of the maize harvest than in regions with lower production indicating that the quantity stored is determined by the food and seed requirement of the household and not to sell during the “off-season” when the farm gate price of maize is higher (Chart 2.106b and Map 2.89).



2.7.2 Methods of Storage

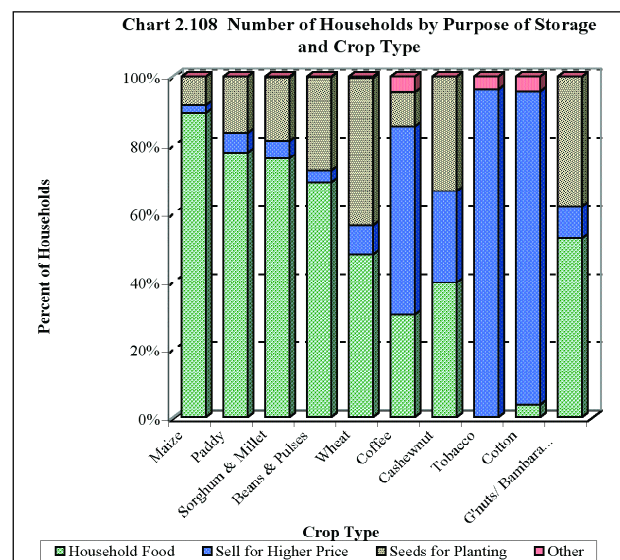
Most households store maize in sacks or in open drums (1,836,091 households). This is closely followed by those using locally made traditional structures (1,398,033). Other means of storage (airtight drums, improved locally made structures, unprotected pile and modern stores) are comparatively very small. However, there are large regional variations.

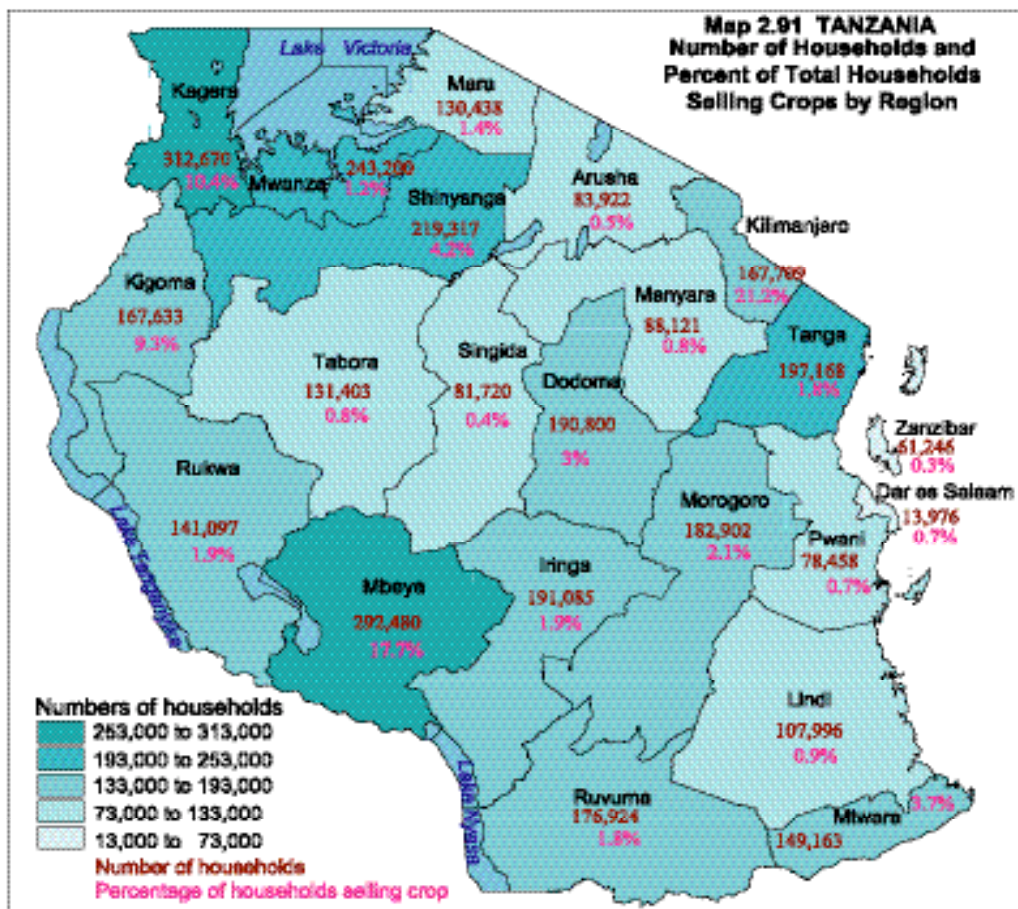
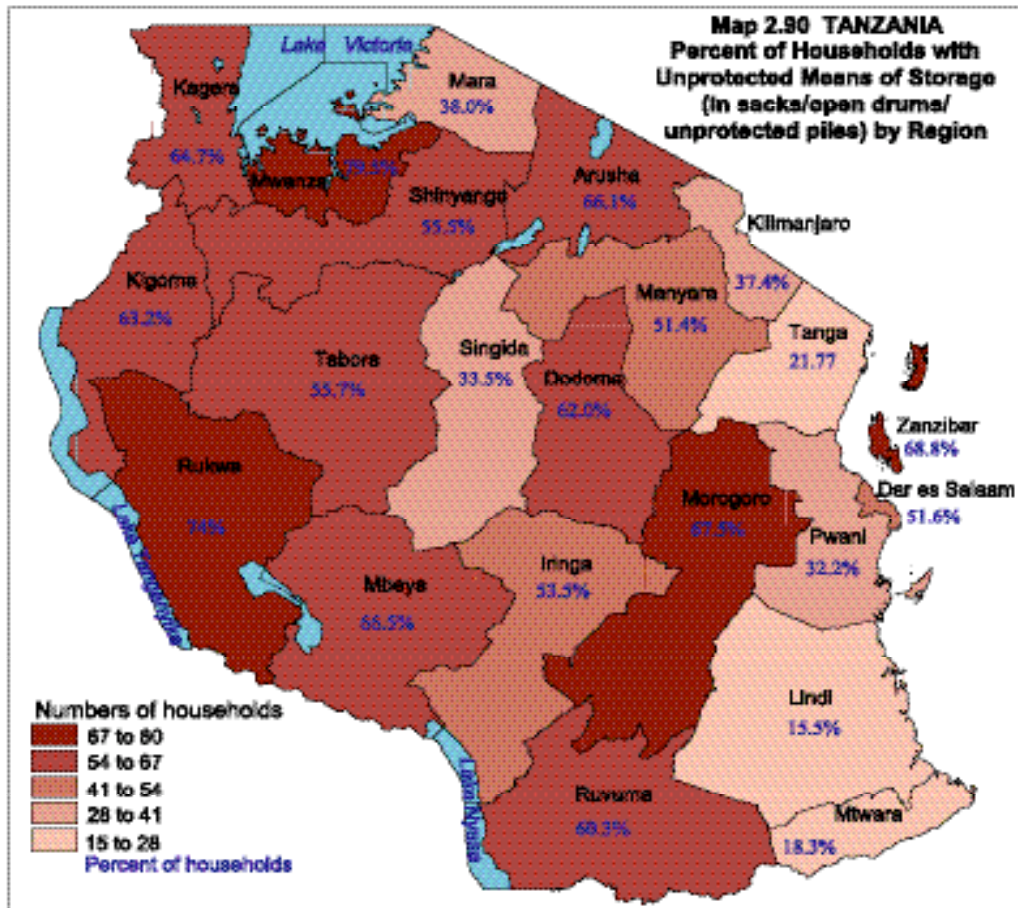


Most of the storage structures in Lindi, Mtwara, Tanga, Singida, Mera and Pwani are of the locally made traditional structure type (over 60%). The main storage structure in Kilimanjaro is in air tight drums (about 50%). Regions with the highest production of maize (Mbeya, Iringa, Ruvuma, Tanga, Rukwa, Mwanza, Tabora and Dodoma) mainly store crops in sacks/open drums. Other forms of storage (modern store and unprotected pile) are of minor importance (Chart 2.107 and Map 2.90).

2.7.3 Purpose of Storage

Subsistence food crops (maize, paddy, sorghum and millet, beans and pulses) are mainly stored for household consumption, with seed for planting being the second most important purpose. Practically all stored annual cash crops are



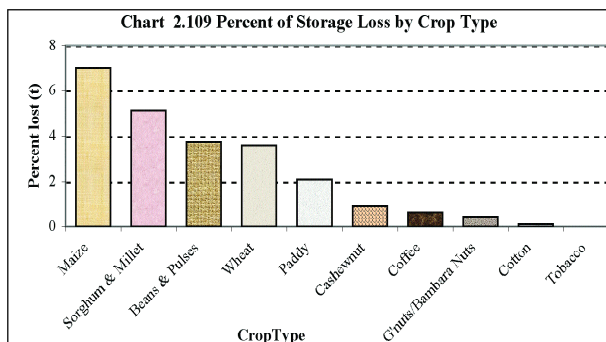


stored for selling for a higher price. Some of the stored permanent cash crops are for household consumption and seeds for planting in the case of cashew nuts. The percent of households that stored maize for household consumption as the main purpose of storage represent 89.5 percent. This is followed by seed for planting (8%) and selling for a higher price (2%).

2.7.4 Storage Loss

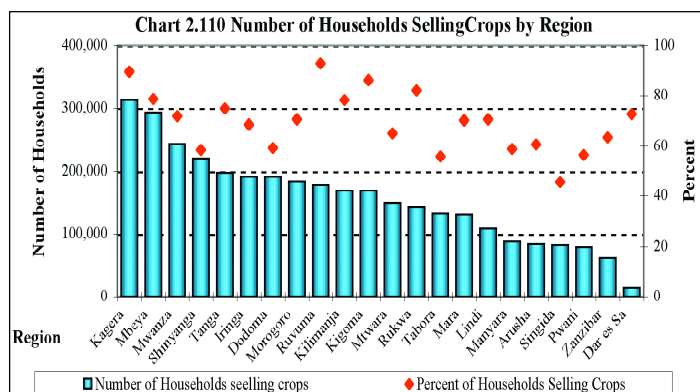
Over 80 percent of households that stored crops had little or no storage loss. Of the households that experienced storage loss, 75 percent reported loss of up to a quarter of the stored quantity.

The highest percentage of storage loss was reported for maize (7%), followed by sorghum (5%), beans (4%), wheat (4%) and paddy (2%). Other crops had little storage loss.



2.8 Crop Marketing

The number of households that reported selling crops in Tanzania was estimated at 3,409,427 which represents 70 percent of the total number of crop growing households. Kagera and Mbeya have the largest number of households selling crops. However the percent of households selling crops is highest in Ruvuma (93%), Kagera (89%), Kigoma (86%), Rukwa (82%), Mbeya (79%) and Kilimanjaro (78%). Singida, Tabora, Dodoma and Shinyanga have the smallest number of households selling crops (46%, 56%, 58% and 59% respectively) (Chart 2.110 and Map 2.91).

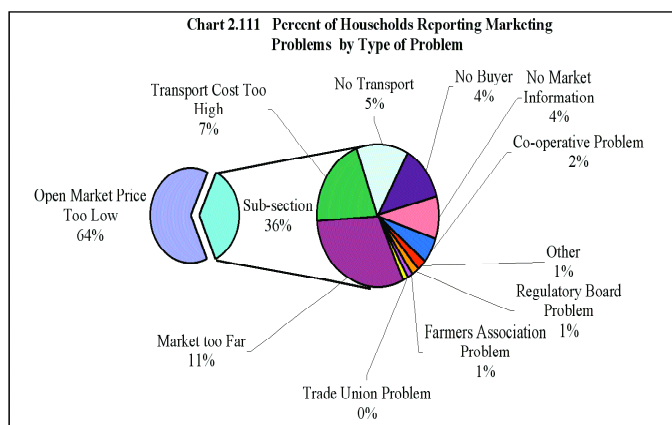


2.8.1 Main Marketing Problems

Low prices were the main problems reported by households (64% of households). However, because this response is considered obvious most of results presented in this section will be on other problems. Apart from low market prices the main marketing problems are related to access to markets. Either the market is too far, the transport cost too high or there is no transport or no buyer. Within the other problems, the problems relating to access to markets accounts for 75 percent of the crop marketing problems. Market information was reported to be the next problem. Other marketing problems are minor and each represent less than 5 percent of the total reported problems.

2.8.2 Main Reason for Not Marketing

The main reason for not selling crops was reported as "insufficient production to sell", representing



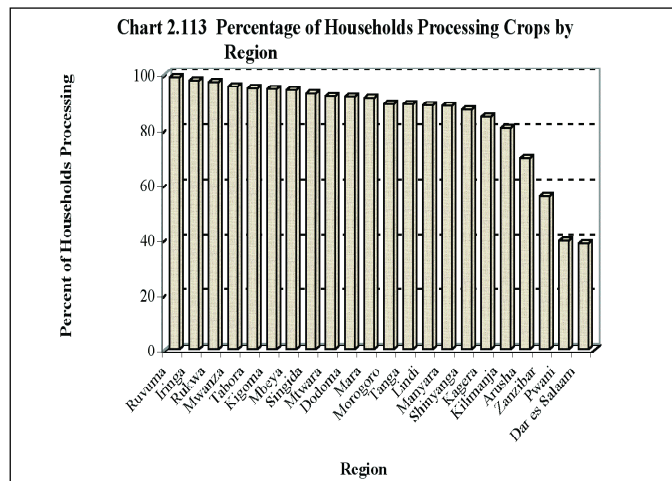
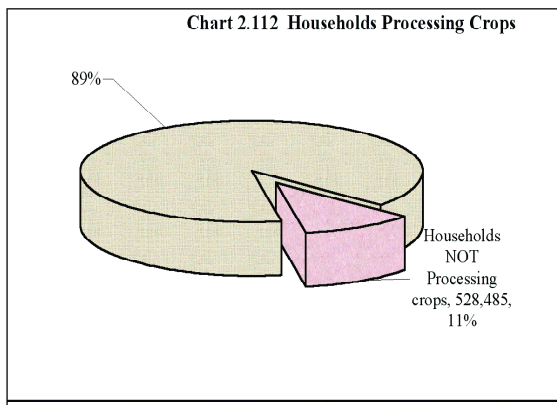
87 percent of smallholders. This may be a result of insufficient rain in some regions. The other reasons for not selling were reported by very few households and therefore insignificant.

This general trend applies to all regions except Pwani, Dar es Salaam and Lindi where the proportion of households reporting other reasons for not marketing their agricultural products is relatively high: 41 percent, 21 percent and 14 percent respectively.

Main reasons	Households number	%
Production Insufficient to Sell	1,637,937	87.2
Price Too Low	71,899	3.8
Trade Union Problems	17,136	0.9
Market Too Far	10,985	0.6
Co-operative Problems	8,850	0.5
Government Regulatory Board Problems	4,824	0.3
Farmers Association Problems	3,345	0.2
Other	122,721	6.5

2.9 Agro-processing

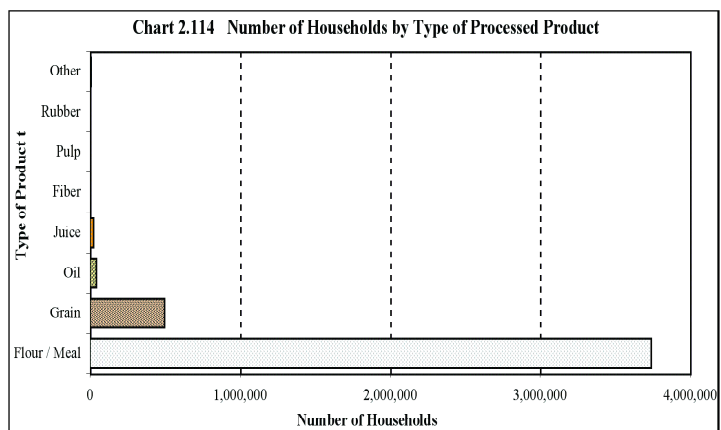
On farm agro-processing is practiced either to process crops into a consumable form or to increase the value of the harvested crop. Agro-processing is practiced in most crop growing households in Tanzania (4,330,325 households, 89% of the total crop growing households) (Chart 2.112).



The percent of households processing crops is very high in most regions (above 80%). The exceptions are Dar es Salaam (38% of crop growing households), Pwani (39%), Zanzibar (57%) and Arusha (64%) (Chart 2.113).

2.9.1 Main Agro-processing Products

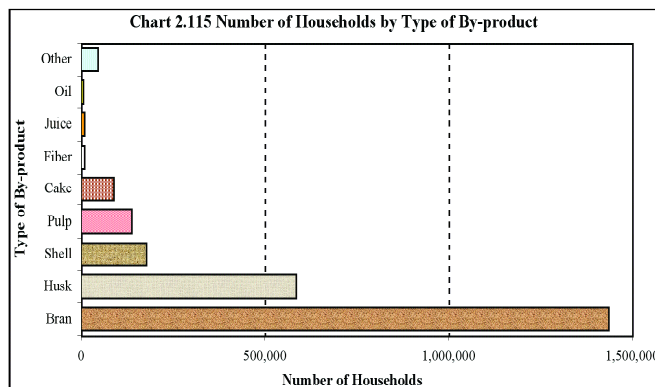
Two types of products are sometimes produced from agro-processing namely, the main product and the by-products. The main product is the major product after processing and the by-product is the secondary product after processing. For example the main product after processing maize is normally flour whilst the by-product is normally the bran.



The analysis on the type of processed product presented here is based on the main processed crop in the household. The main processed product produced by crop processing households is flour/meal with 3,740,875 households (86%) producing

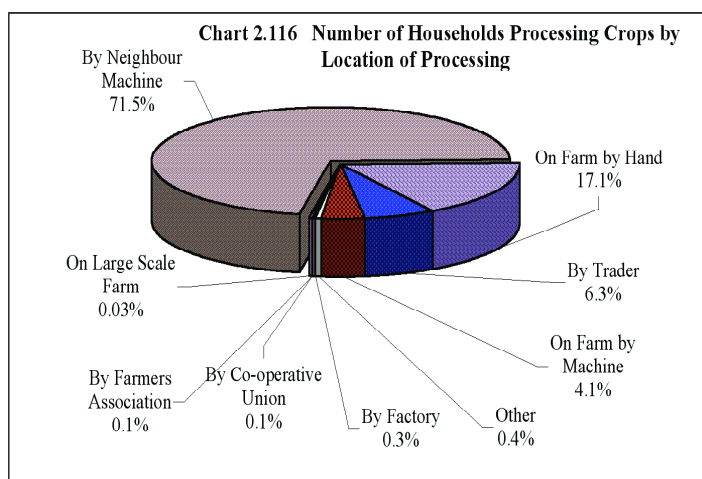
this product. This is followed by grain with 498,259 households (12%). The remaining products are produced by a small number of households.

The number of households producing by-products represents 46 percent of the households processing crops. The most common by-product produced by crop processing households is bran with 1,436,580 households followed by husks (586,043 households), shell (178,619), pulp (138,171) and cake (89,265). The remaining by-products are produced by a small number of households.

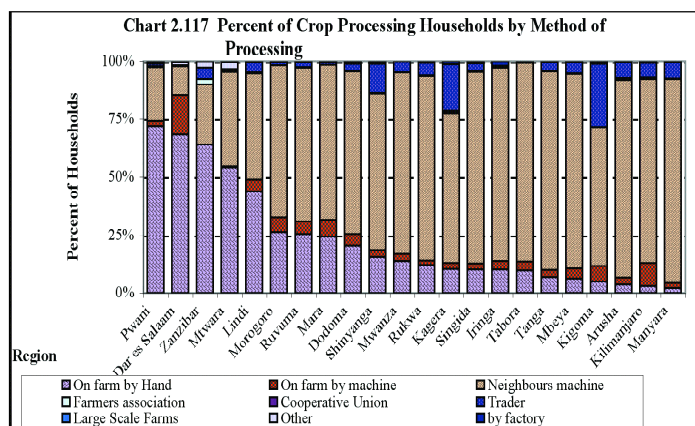


2.9.2 Crop Processing Methods

Most crop processing households process their crops using a neighbour's machine representing 71.5 percent. This is followed by those processing on-farm by hand (17%), trader (6%) and on-farm by machine (4%). The remaining methods of processing are used by very few households (less than 1%) (Chart 2.116).

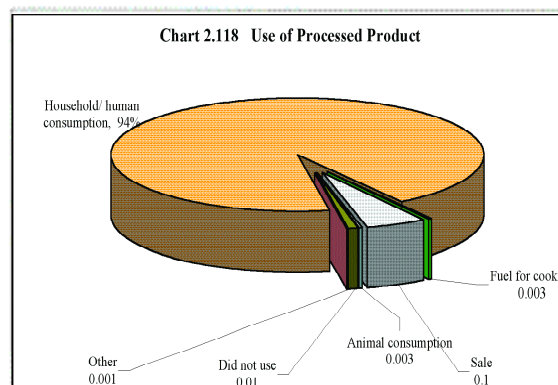


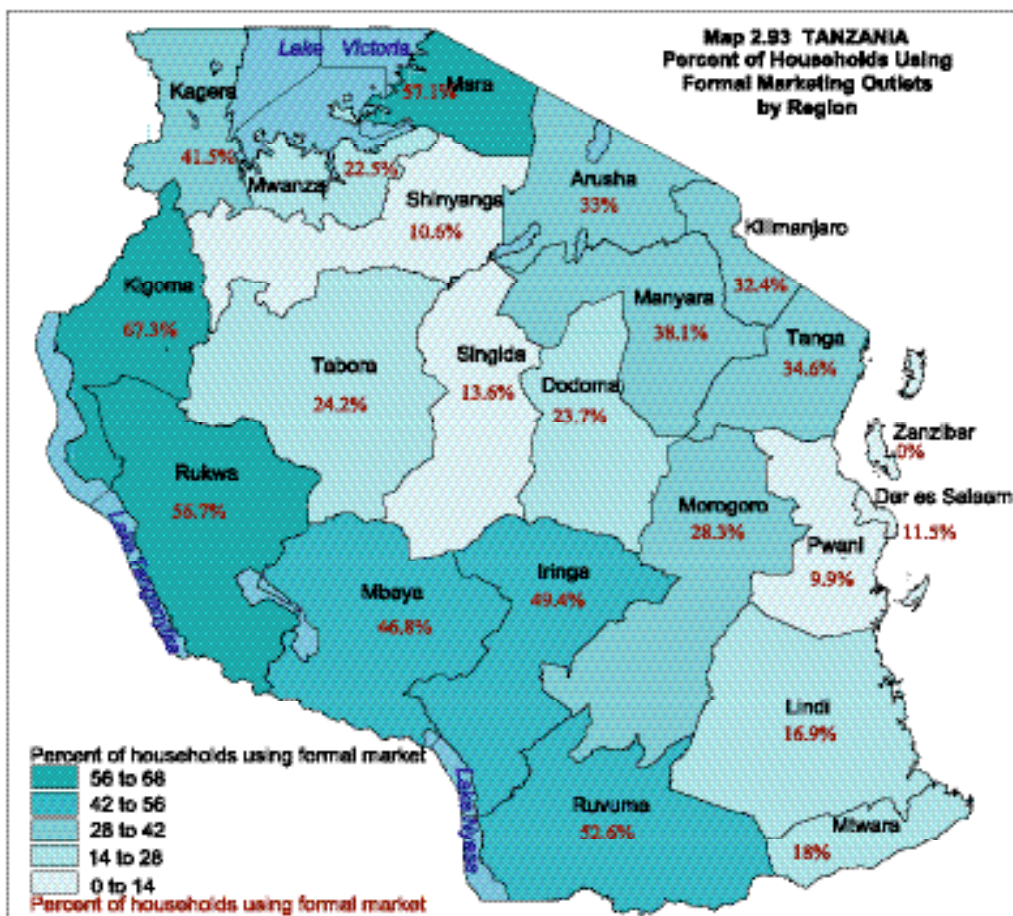
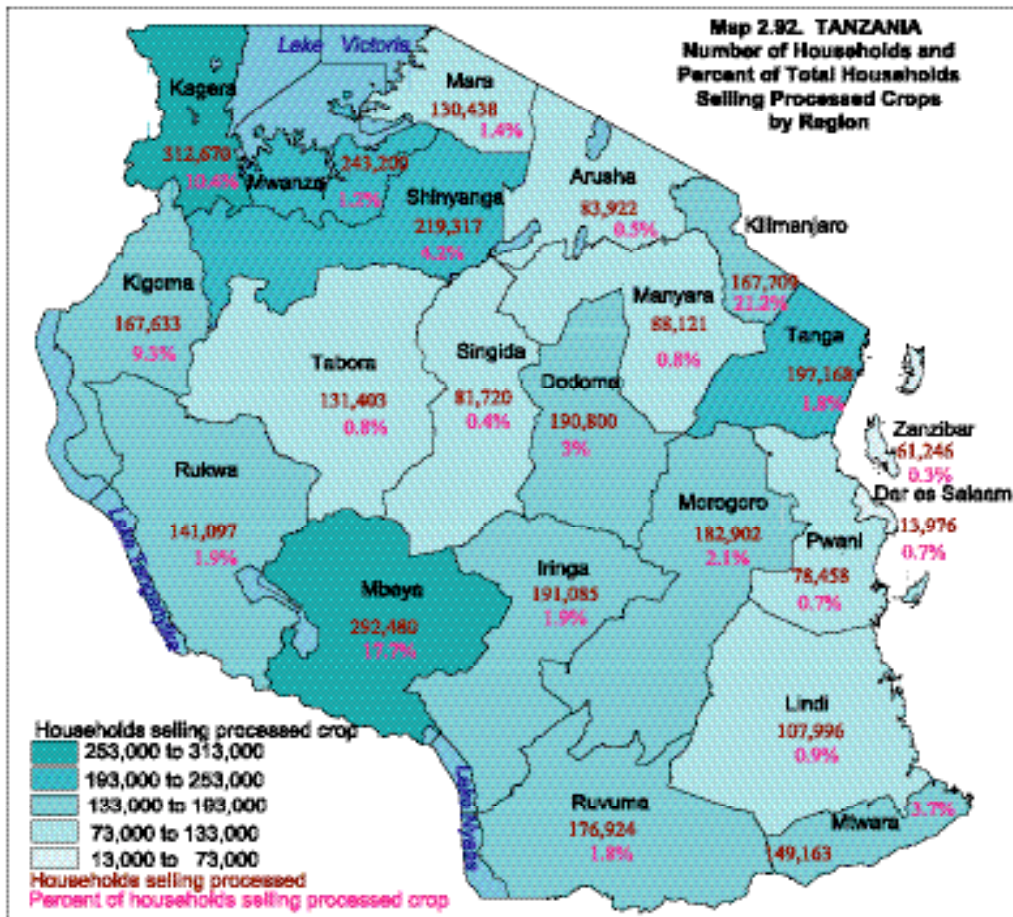
There are regional differences with more than 50 percent of the households in 18 out of the 21 regions in the country processing by neighbours machine. Pwani, Dar es Salaam, Zanzibar, Mtwara and Lindi have the highest percent of households processing on-farm by hand (72%, 68%, 63%, 54%, and 44% respectively). Processing by trader is more common in Kigoma, Kagera and Shinyanga (28%, 20% and 13% respectively) than in other regions. Processing on farm by machine is more prevalent in Dar es Salaam and Kilimanjaro (Chart 2.117).



2.9.3 Main Use of Processed Products

A large percent of households reported "home consumption" as the main use of processed products (94% of the total number of households processing crops). This is followed by selling as the second most common use of processed products (5%). The remaining uses, e.g. fuel for cooking, animal consumption, etc. are mainly for a small number of households (Chart 2.118). Out of 239,535 households that sell processed products, 76,600 households are in Mbeya (32% of the total number of



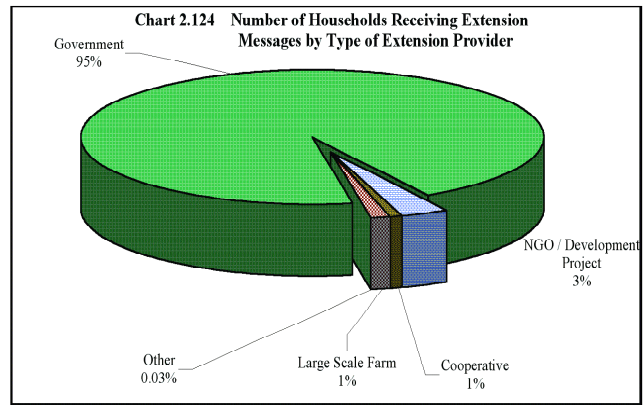


17,109 in Zanzibar) which represents only 34 percent of the total number of crop growing households. Some regions have better access to extension services than others.

The proportion of smallholder households receiving extension is highest in Dar es Salaam and Iringa (64% of the total number of smallholder households). This is followed by Kilimanjaro (63%), Kigoma (60%), Singida (48%) Tanga (46%), Mbeya (41%) and Dodoma (41%). In contrast the households receiving the least advice are found in Lindi (17%), Rukwa (17%), Mtwara (18%), Zanzibar (18%), Kagera (20%) and Mwanza (21%) (Chart 2.123 and Map 2.94).

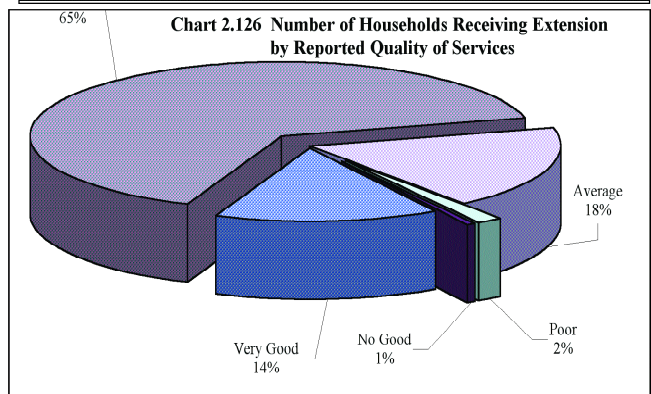
2.10.2 Source of Extension

The Government provides most of the extension advice given to households (95%), NGOs (3%), large scale farms and cooperatives only provide 1 percent each (Chart 2.124). This trend is similar for all regions except for Tabora, Rukwa, Mwanza & Kagera where the proportion of households receiving advice from NGOs/Development projects are much higher (14%, 10%, 10%, and 9% respectively) than in other regions (Map 2.95).



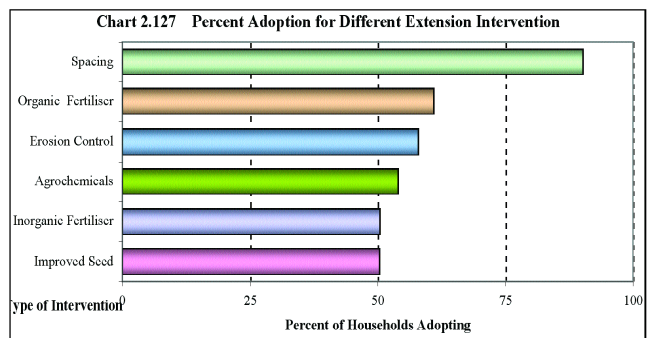
2.10.3 Quality of Extension

Care should be exercised when making decisions on quality of extension and also other variables in the extension part of the report as all the enumerators were extension agents and some degree of bias may be expected. Most households reported the quality of extension services to be good (65%), but only 14 percent reported the quality of services to be very good. Very few reported that the services to be either poor (2%) or no good (1%) (Chart 2.126).



2.10.4 Extension Adoption Rate

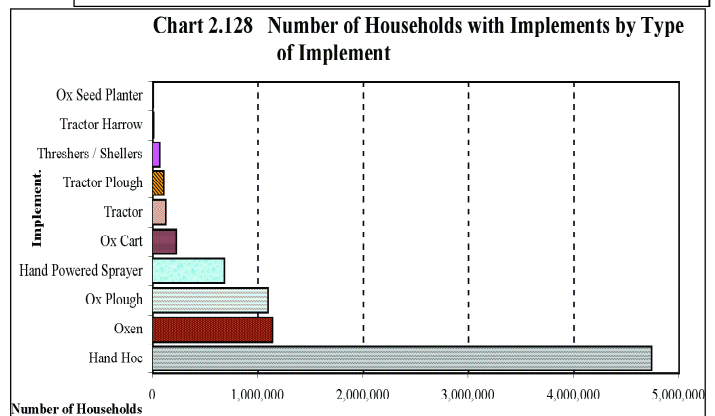
The overall extension adoption rate was 63 percent. Extension Adoption Rates are over exaggerated. The adoption rates presented here for the different inputs are much higher than the actual use of these inputs in Section 2.6. However it appears that the interventions that require no costs are the most adopted (Chart 2.127).

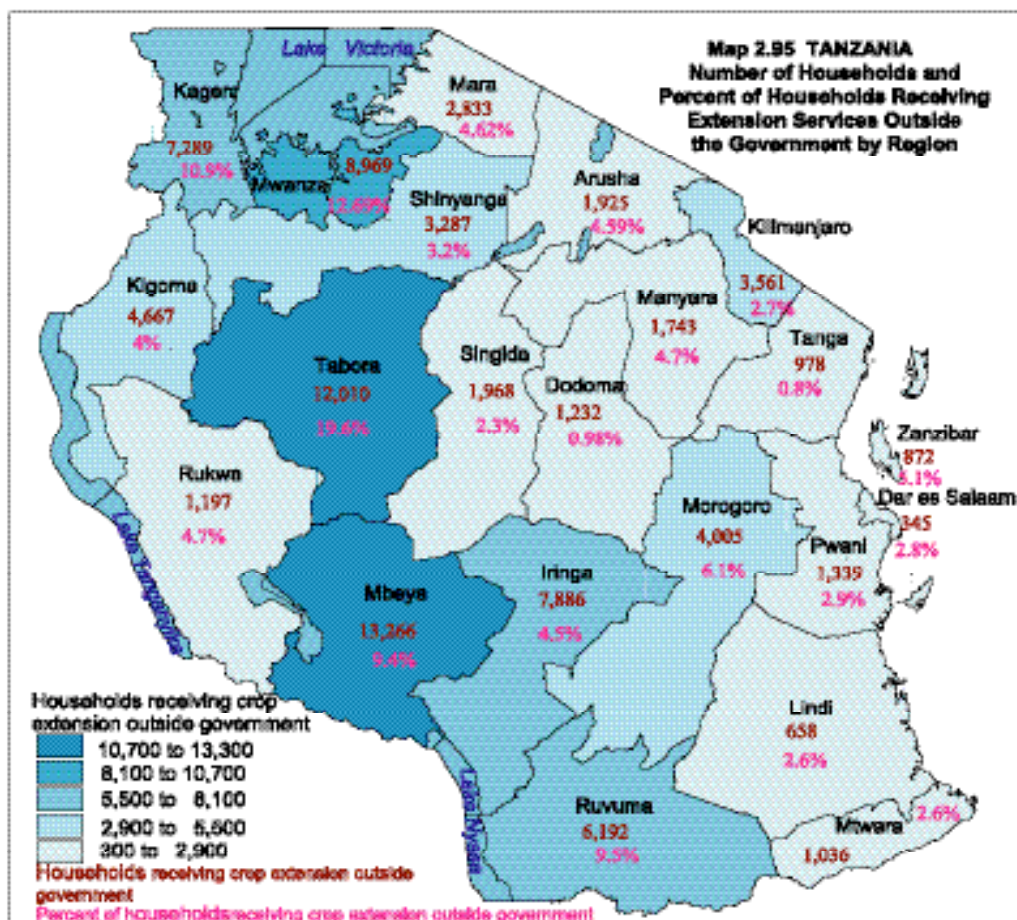
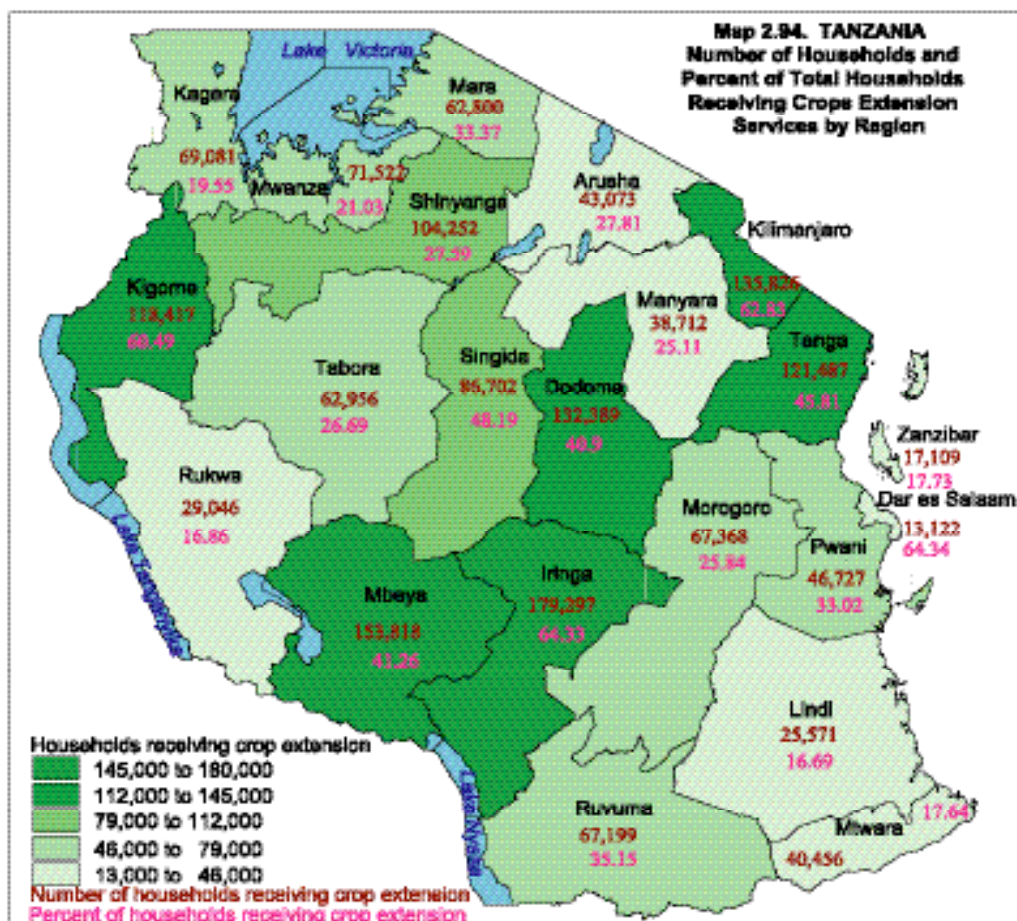


2.11 Crop Implements

2.11.1 Access to Implements

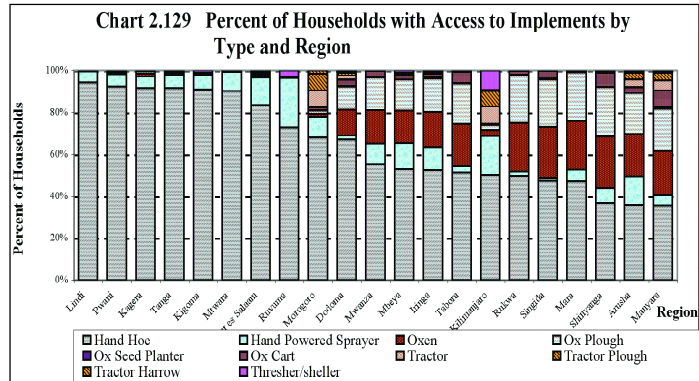
The majority of implements found on farms are hand held hoes (4,747,642 households, 97.7% of





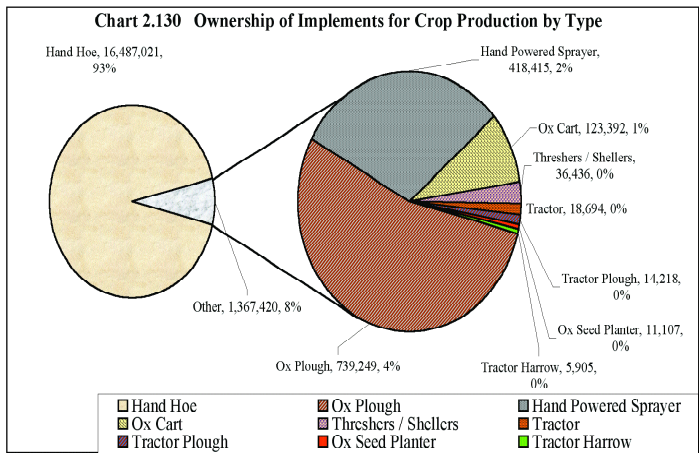
crop growing households in Tanzania). This is followed by those with oxen (1,144,099 households, 24%) and oxen plough (1,103,765 households, 23%). Only 5 percent of the crop growing households have ox carts whilst those with tractors represent only 3 percent. Households with threshers, tractor harrows and ox seed planter are very few (Chart 2.128).

Households in Lindi, Pwani, Kagera, Tanga, Kigoma, Mtwara and Dar es Salaam regions have access to hand held hoes and only a small number of hand powered sprayers. They have little or no access to other implements. The regions that have the greatest access to oxen and oxen ploughs are Shinyanga, Singida, Rukwa, Tabora, Manyara and Arusha. Shinyanga, Manyara and Tabora regions have the greatest access to ox carts, although comparatively small. There is very little access to tractors with the exception of Morogoro, Kilimanjaro, Manyara and Arusha (Chart 2.129 and Map 2.96).



2.11.2 Ownership of Implements

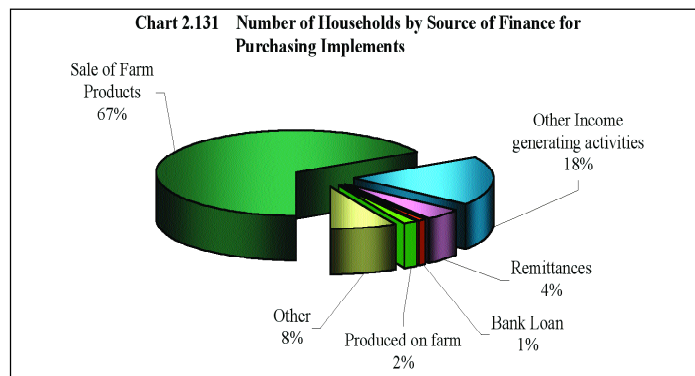
Of all the implements owned by households 93 percent (16,487,022) are hoes. Of the remaining implements owned (8%), ox ploughs constitute over 50 percent and hand powered sprayers over 25 percent. Ownership of the remaining implements is very small. Ownership tractors and tractor implements is extremely small (Chart 2.130).

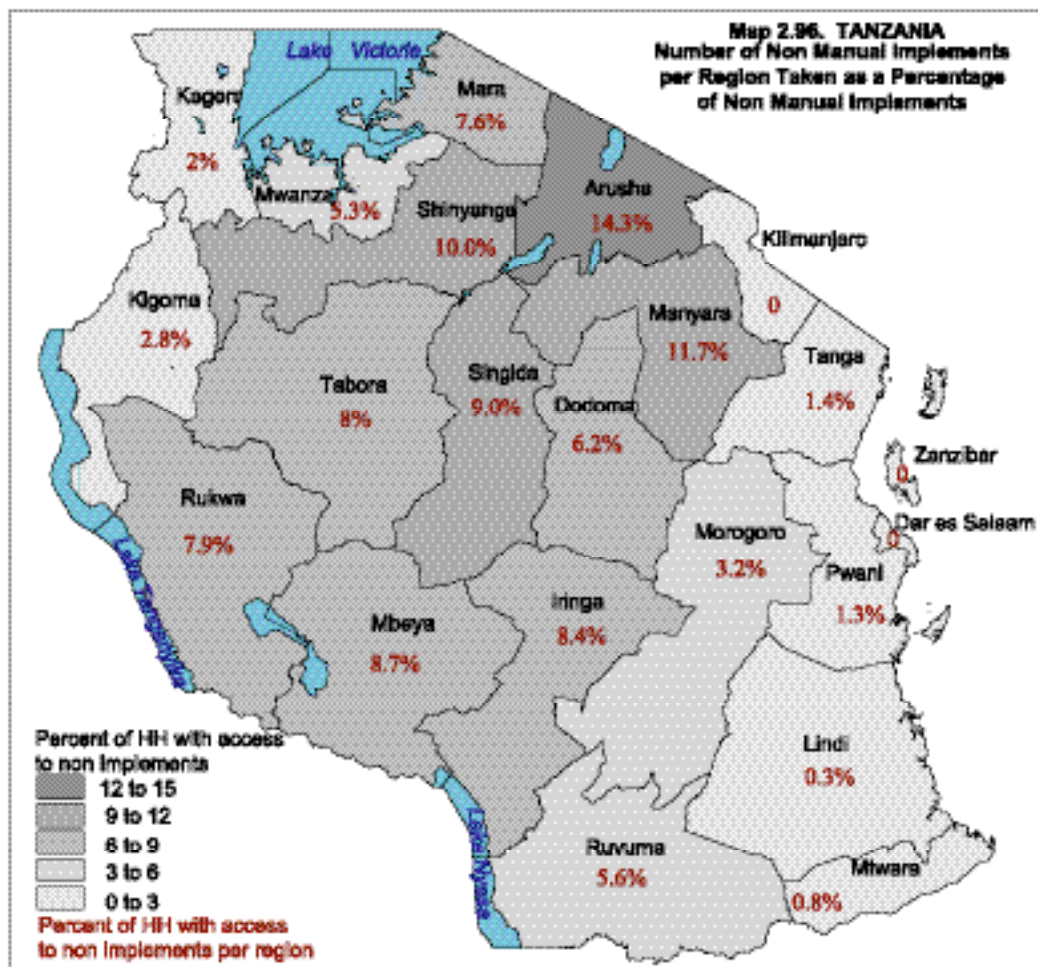


Ownership tractors and tractor implements is extremely small (Chart 2.130).

2.11.3 Source of Finance for Purchasing Implements

Sale of farm products is the main source of funds for purchasing implements (67% of households). This is followed by other income generating activities (18%) and remittances (4%). Only less than 1 percent of households purchase implements using bank loans (Chart 2.131)





2.12 Use of Inputs

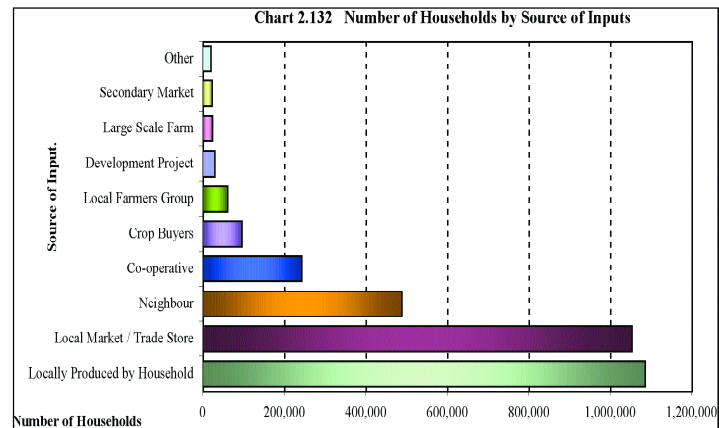
Access to inputs in this section refers to all crop growing households in Tanzania regardless of whether the household grew annual or permanent crops. In previous sections the reference was on annual crops only. Because of this the figures presented in this section may be different from the previous section on inputs (Section 2.6). Data on source of inputs is only found in this section and it applies to both annual and permanent crops.

Type of Input	Households With Access to Input		Households Without Access to Input	
	Number	%	Number	%
Farm yard manure	1,255,312	26	3,507,277	74
Improved seeds	877,308	18	3,885,281	82
Fungicide	794,372	17	3,968,217	83
Inorganic fertiliser	552,953	12	4,209,636	88
Compost	281,678	6	4,480,911	94
Herbicide	76,201	2	4,686,388	98

A small number of households use inputs and this is particularly true of inputs that are not produced on farm i.e. improved seed, fungicides, inorganic fertiliser and herbicides. On the Mainland farm yard manure is used by 1,255,312 households which represents 26 percent of the total number of crop growing households. This is followed by households using improved seeds (18%), fungicide (17%), agro-chemical fertiliser (12%), compost (6%) and herbicide (2%) (Table 2.12).

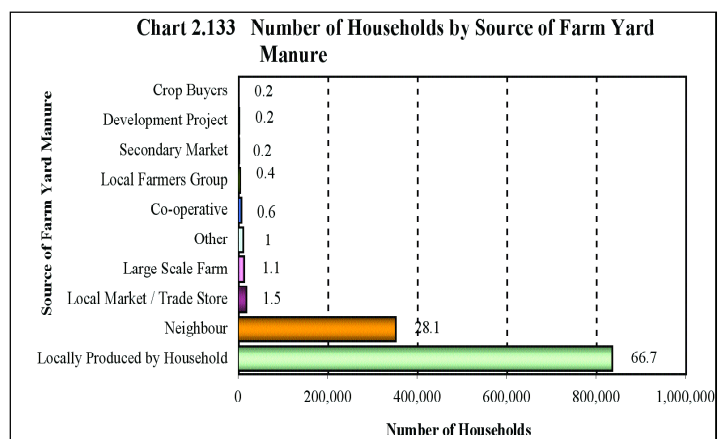
2.12.1 Source of Inputs

Most crop inputs are locally produced by the household (34%) (mainly referring to farm yard manure and compost), followed by local market/trade store (33%), Neighbours (16%) and Cooperatives (8%). Other sources are of minor importance with the smallest number of households obtaining crop inputs from secondary markets, large scale farms and development projects.



Farm Yard Manure

For farmers that apply farm yard manure, the source is mostly from their own farm (67% of small holders applying farm yard manure). This is followed by neighbours (28%). A small number of households get farm yard manure from local markets (1.5%) and large scale farmers (1.1%). Other sources are of very minor importance (Chart 2.133). Farm yard manure is mostly used in the regions of Kilimanjaro with 75 percent of the total number of households, followed by Shinyanga (46%), Arusha (44%), Manyara (39%), Iringa (33%), Ruvuma (32%), Dar es Salaam (31%) and Mwanza (30%).



Compost

Most smallholders using compost produce it on their own farms (80% of farmers using compost). This is followed by purchasing from neighbours (10.5%). Few households get their compost from cooperatives (3.9%), local markets (1.9%) or large scale farms (1%) (Chart 2.134).

Compost is mostly used in the regions of Dar es Salaam with 18 percent of the number of households using compost, followed by Mbeya (15%), Kagera (13%), Pwani (8%) and Kigoma (8%).

Inorganic Fertilisers

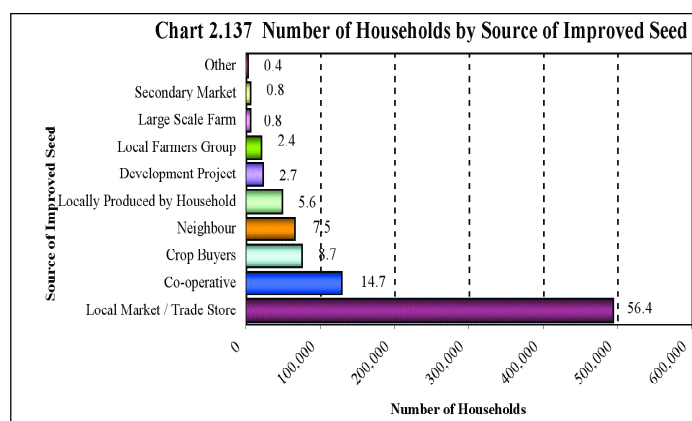
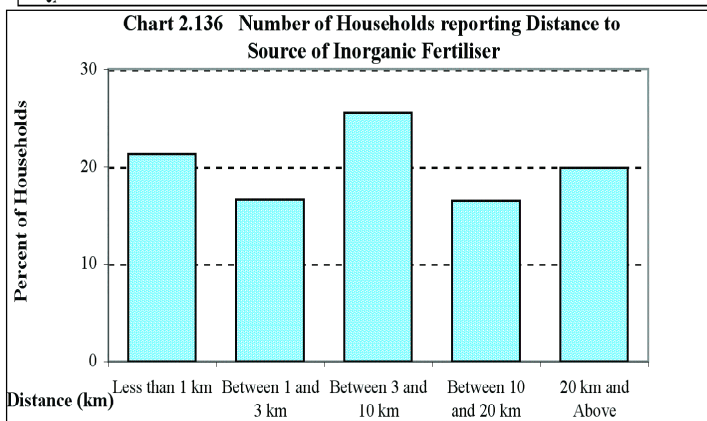
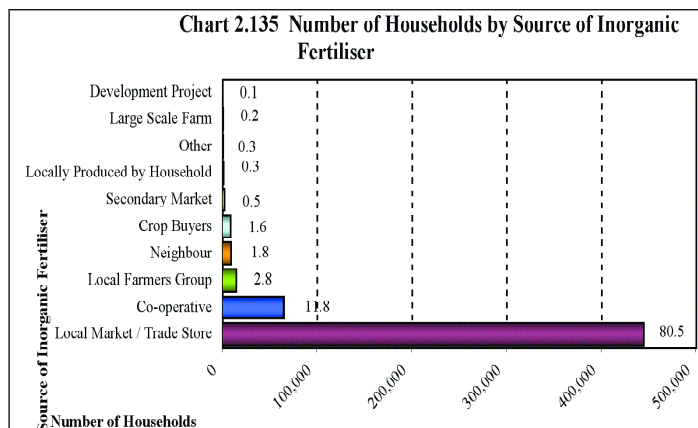
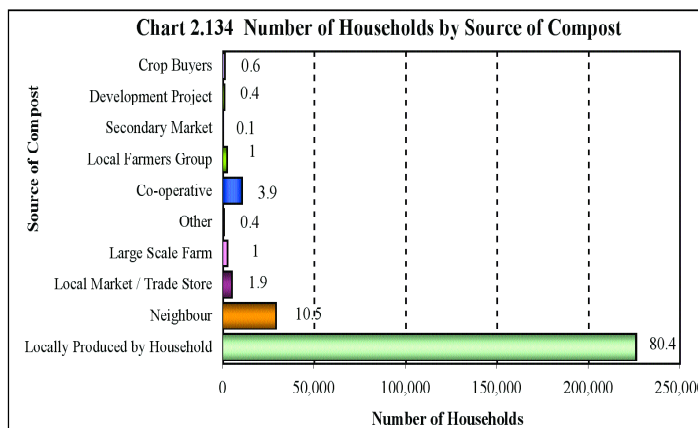
Smallholders that use inorganic fertiliser mostly purchase it from the local market/trade store (81% of the total number of inorganic fertiliser users). This is followed by cooperatives (12%). The remaining sources of inorganic fertilisers are minor (Chart 2.135).

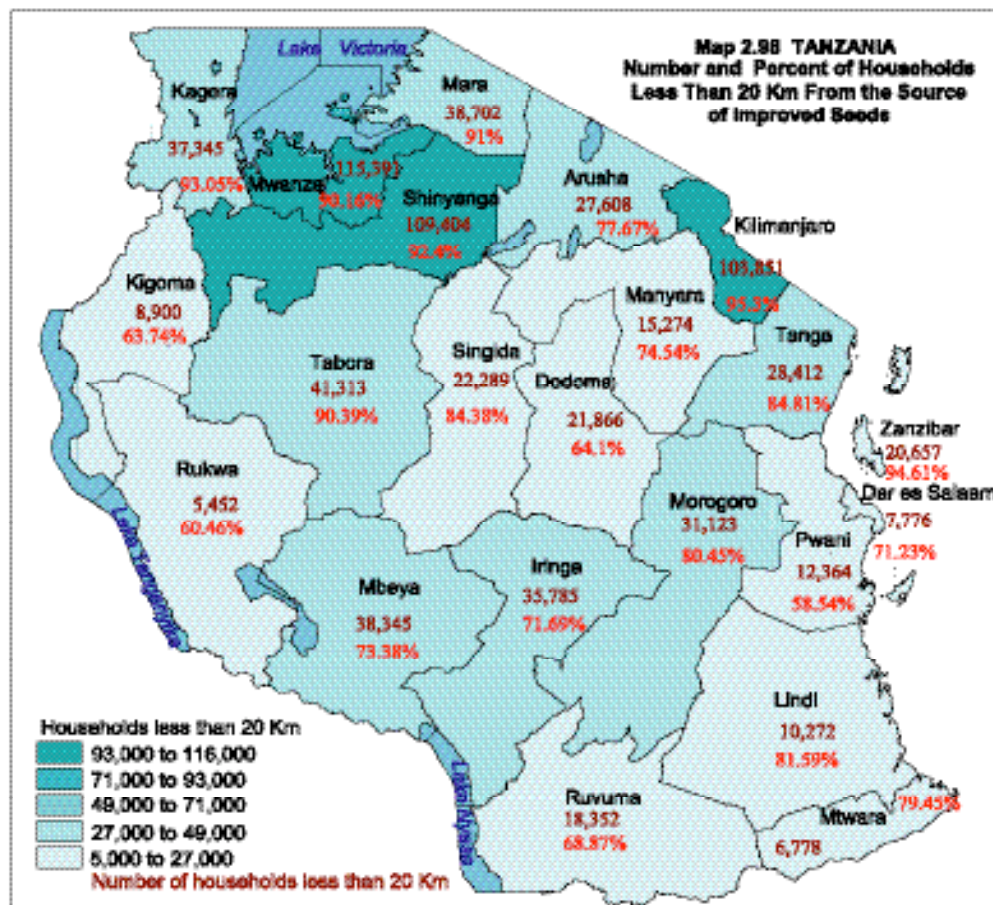
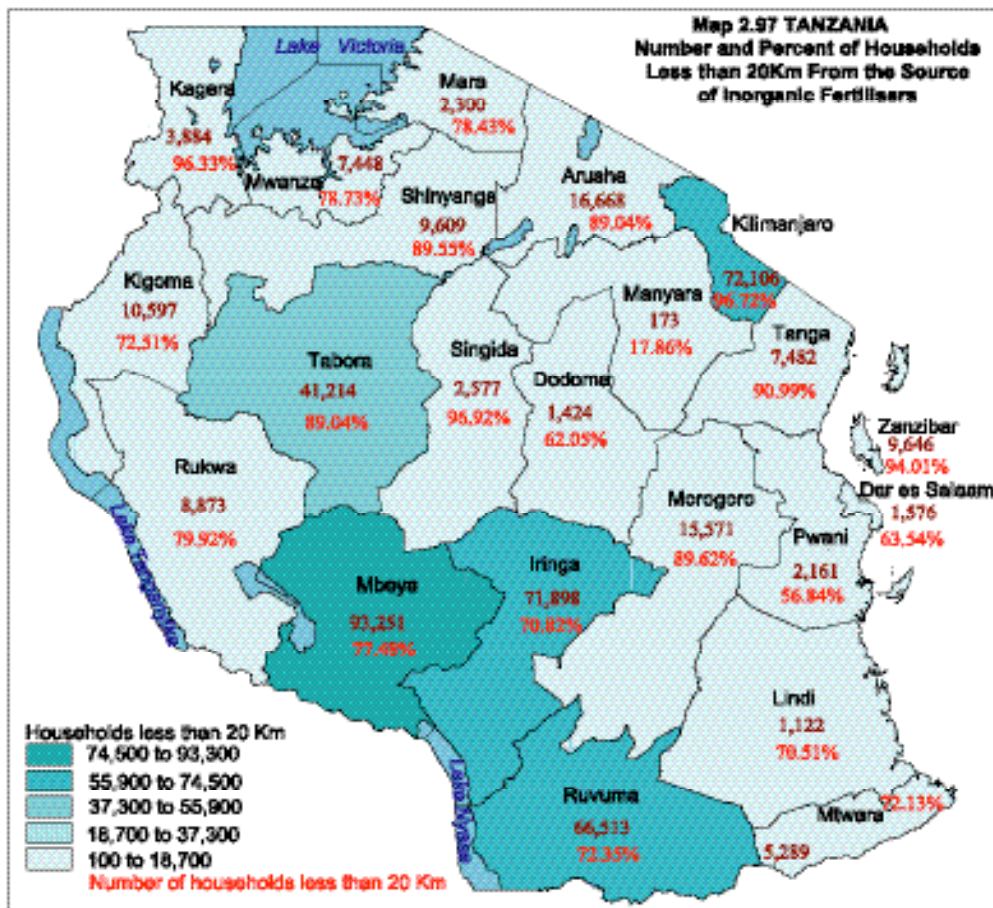
Access to inorganic fertiliser is variable with almost the same numbers of farmers reporting different distances to the fertiliser source (Chart 2.136). Due to the very small number of households using inorganic fertilisers coupled with the small number of households responding to “non available” (18%) as the reason for not using, it may be assumed that access to inorganic fertiliser is not the main reason for not using. Other reasons such as cost are more important with 57 percent of households responding to cost factors as the main reason for not using. In other words, it is assumed that if the cost was affordable the demand would be higher and access to inorganic fertiliser would be made more available. More smallholders use inorganic

fertilisers in Ruvuma (48% of households using inorganic fertilisers), Iringa (36%), Kilimanjaro (35%), Mbeya (32%) and Tabora (20%) (Map 2.97).

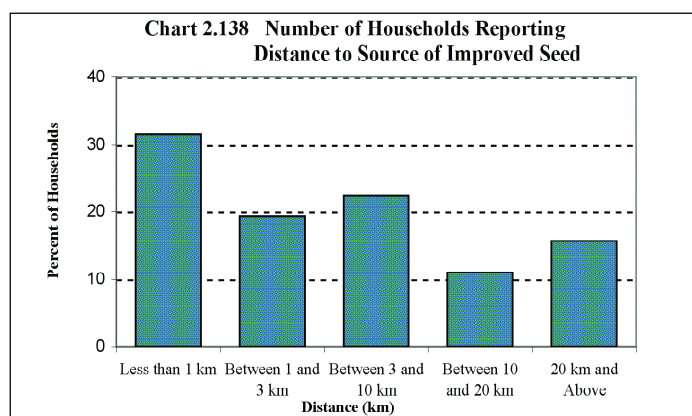
Improved Seeds

The percent of households that use improved seeds is 18 percent of the total number of crop growing households. Most of the improved seeds are from the local market and trade store 56.4 percent. Other less important sources of improved seed are from cooperatives (14.7%), crop buyers (8.7%) and neighbours (7.5%). Only 0.8 percent of households obtain improved seeds from large scale farms (Chart 2.137).





The access to improved seed is better than other improved inputs (improved seed and chemical inputs) with 32 percent of households obtaining this input within 1 km of the household (Chart 2.138). This is in line with the higher use of improved seed compared to other improved inputs, which further supports the concept that it is not the availability that is the main issue in the use of inputs but rather other factors such as cost.



The regions that mostly use improved seeds are Dar es Salaam with 57 percent of the total number of households using improved seeds, followed by Kilimanjaro with 51 percent, Mwanza with 38 percent, Arusha with 26 percent and Mara with 23 percent (Map 2.98).

Insecticides and Fungicide

Most smallholder households using insecticides and fungicides mainly purchase them from local markets/trade stores (67% of the total number of fungicide users). Cooperatives are the next important source of fungicides/insecticides (16.7%). Other sources of fungicides/insecticides are crop buyers (3.6%), local farmers (3.6%), locally produced by household (3.3%) and neighbours (3.1%). Very few households receive insecticides/fungicides from large scale farms (Chart 2.139).

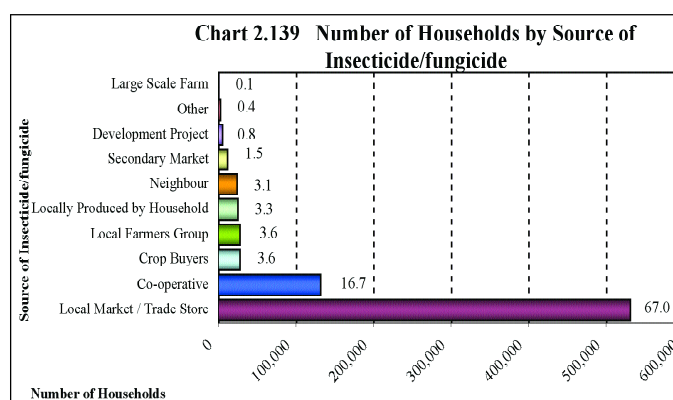
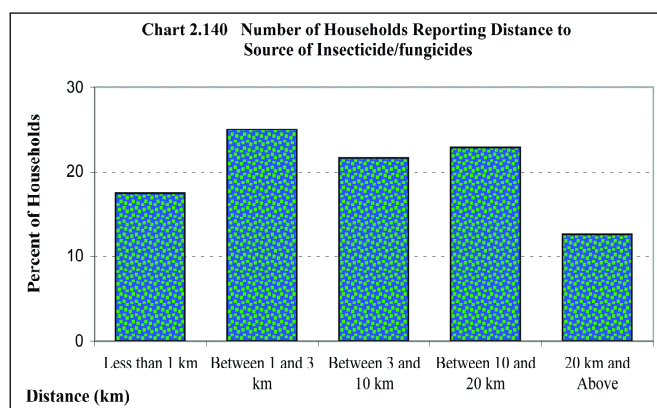


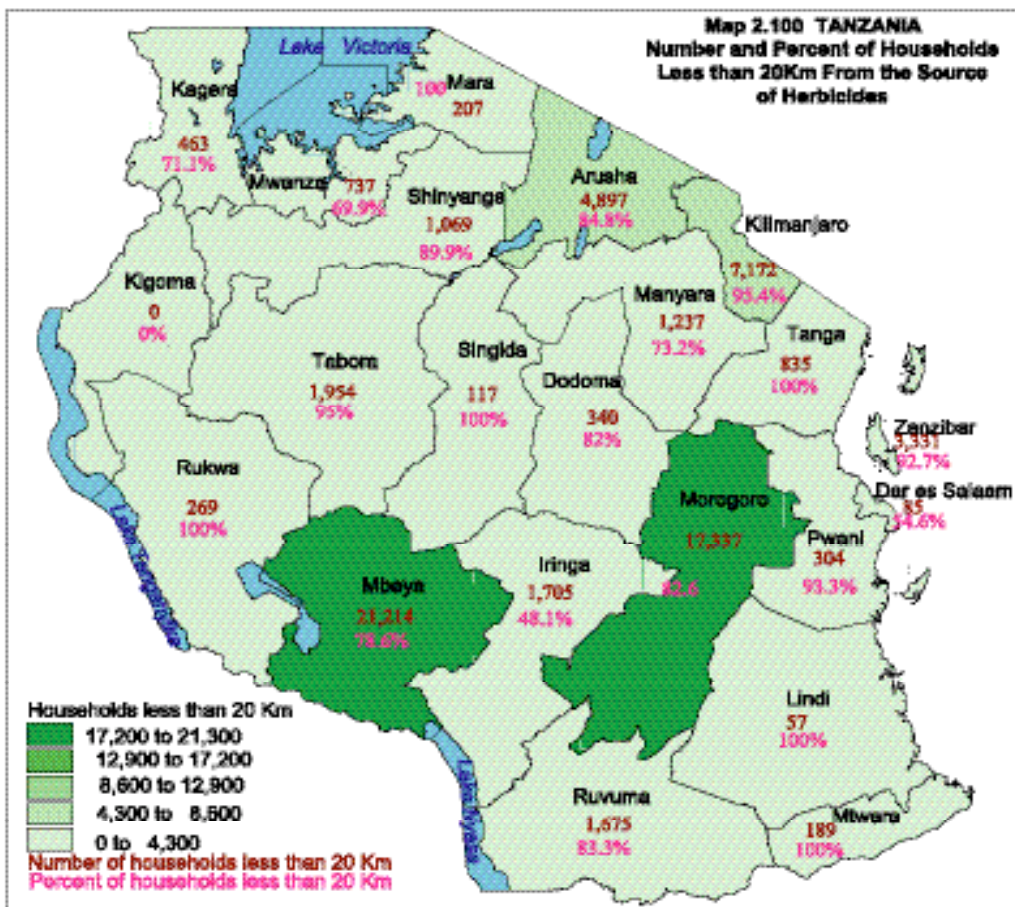
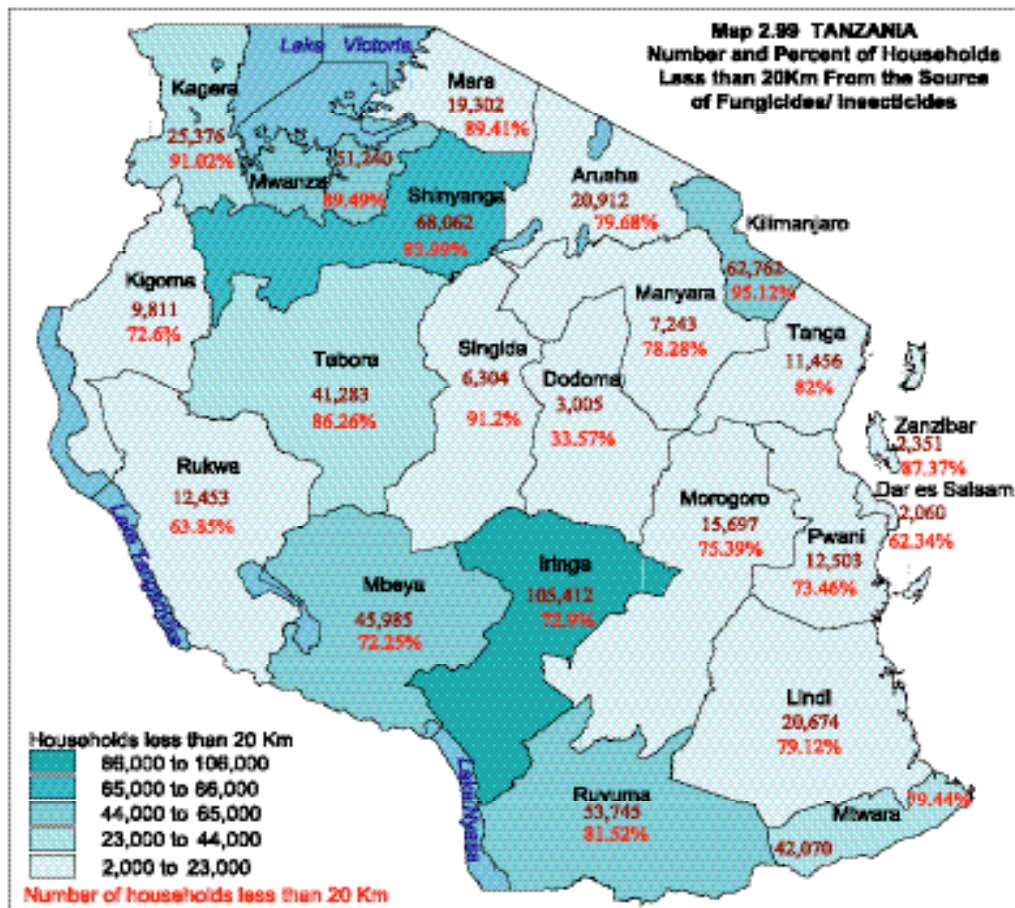
Chart 2.140 shows that there is no distinct pattern for the number of households with varying distances from the source of insecticide/fungicide.

As was the case for inorganic fertiliser the small number of households using insecticides/fungicides coupled with the 10 percent of households responding to "non available" as the reason for not

using it may be assumed that access is not the main reason for not using. Other reasons such as cost are more important with 59 percent of households responding to cost factors as the main reason for not using. In other words, it is assumed that if the cost was affordable the demand would be higher and access to insecticides/fungicides would be made more available.

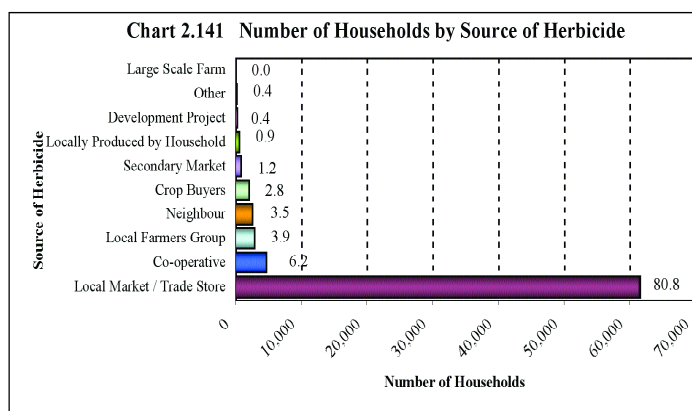


Fungicide is mostly used in Iringa with 52 percent of the total number of households using fungicide, followed by Ruvuma (35%), Kilimanjaro (31%), Mtwara (23%), Shinyanga (22%), Tabora (20%) and Arusha with 19 percent (Map 2.99).

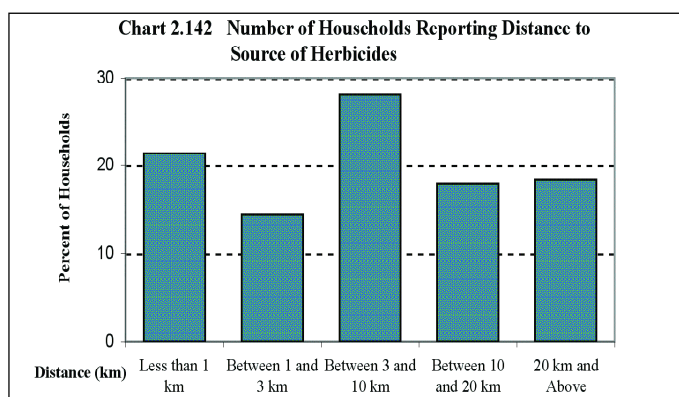


Herbicides

The number of households using herbicide is estimated at only 76,201 which represent 1.6 percent of the total number of crop growing households. Most of these households obtain herbicide from the local market and store 80.8 percent and a small amount from cooperatives (6.2%). Other sources of herbicides are minor (Chart 2.141).



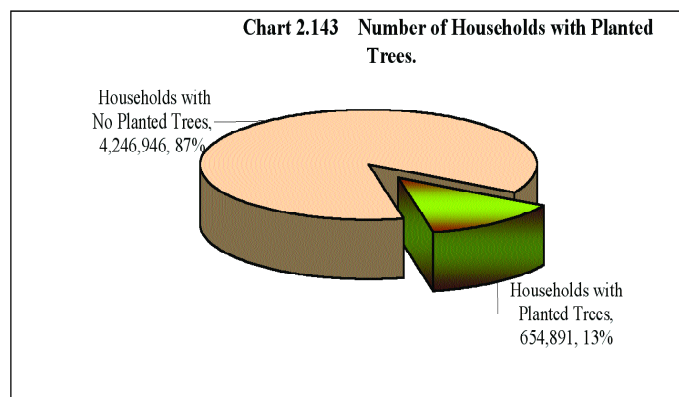
The majority of households are less than 10 km from a source of herbicides. As with the other improved inputs, it is not the accessibility that is the main factor for not using but cost related factors with 16 percent of households responding to "not available" against 58 percent responding to cost related issues as the main reason for not using (Chart 2.142).



The amount of households using herbicides is very small in all regions of Tanzania. The highest percent of smallholders using herbicides are in Morogoro (8% of smallholders in the region) and Mbeya (7%) (Map 2.100).

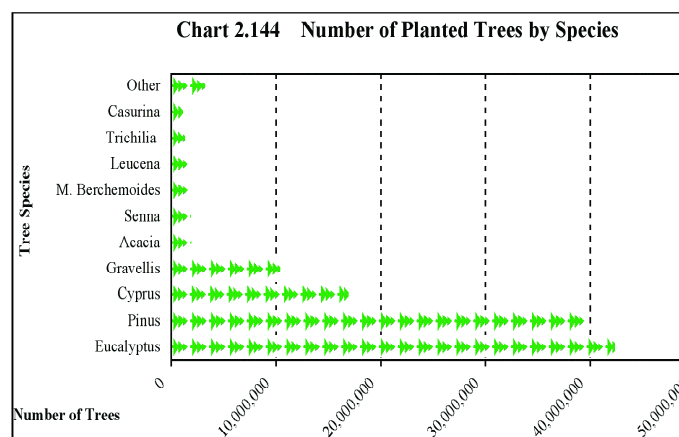
2.13 Tree Planting

The number of households involved in tree farming was 654,891 representing 13 percent of the total number of agriculture households (Chart 2.143).

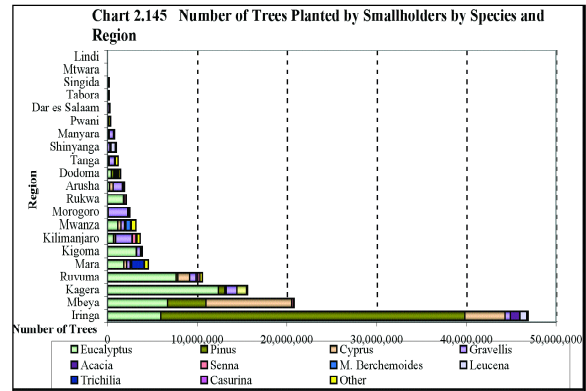


The number of trees planted by smallholders on their allotted land is 121,214,284 trees. The average number of trees planted per household that plants trees on their land is 185 trees.

The main species planted by smallholders is Eucalyptus (42,432,697 trees, 35%), closely followed by Pinus (39,509,176, 32%), then Cyprus (17,026,168, 14%) and Gravellis (10,498,098 trees, 9%). The remaining trees species are planted in comparatively small numbers (Chart 2.144). Iringa has much more smallholder planted trees than any other region (38.7%) and it is dominated by Pinus species. This is followed by Mbeya (17%) which is dominated by Cyprus and to a lesser extent

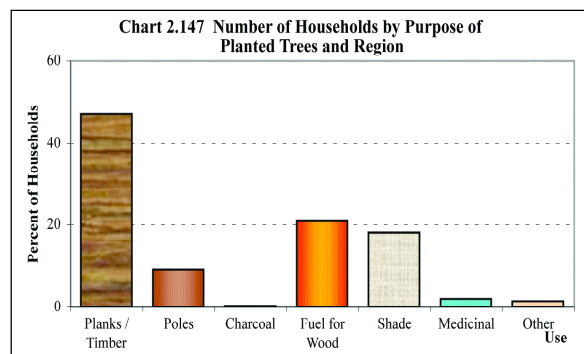
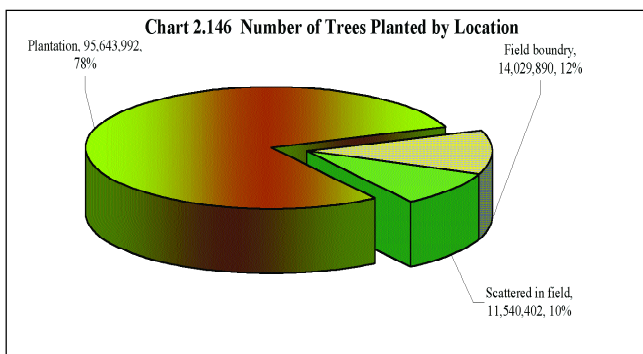


Eucalyptus, then Kagera (13%) and Ruvuma (9%) which is mainly planted with Eucalyptus (Chart 2.144 and 2.145; Maps 2.101 and 2.102).



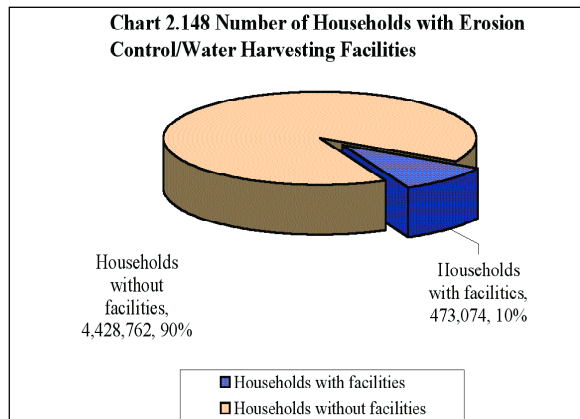
Smallholders mostly plant trees on the boundary of fields. The proportion of households that plant on field boundaries is 46 percent, followed by scattered around fields (31%) and then trees planted in a plantation or coppice (23%) (Chart 2.146).

The main purpose of planting trees is to obtain planks/timber (45%). This is followed by wood for fuel (20%), shade (19%) and poles (9%). Very little is used for the production of charcoal (Chart 2.147).



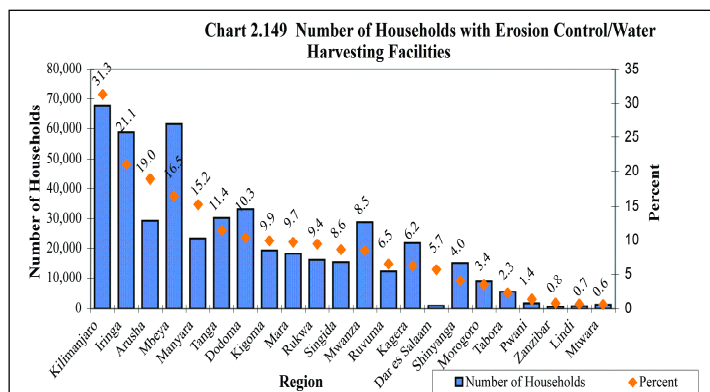
2.14 Erosion Control and Water Harvesting Facilities

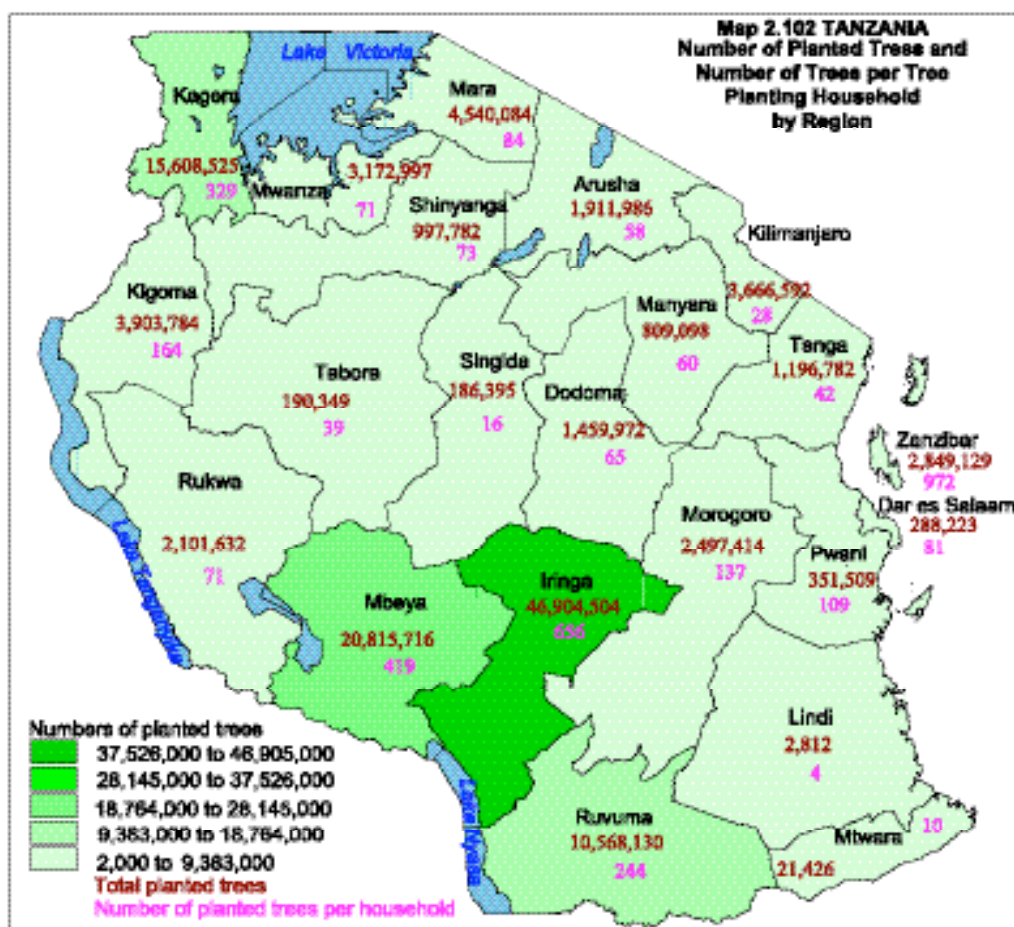
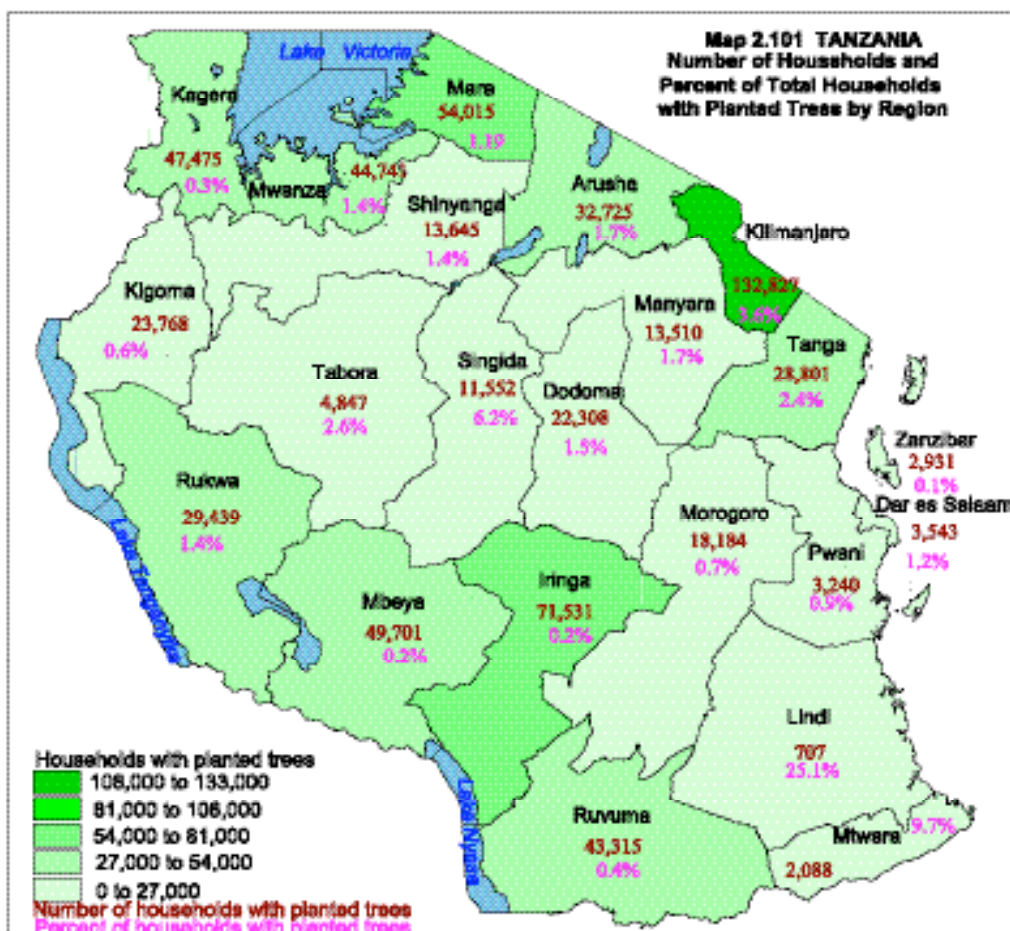
Erosion control and water harvesting facilities are grouped together as they normally have the dual purposes of reducing erosion and increasing the amount of water available for crop production.



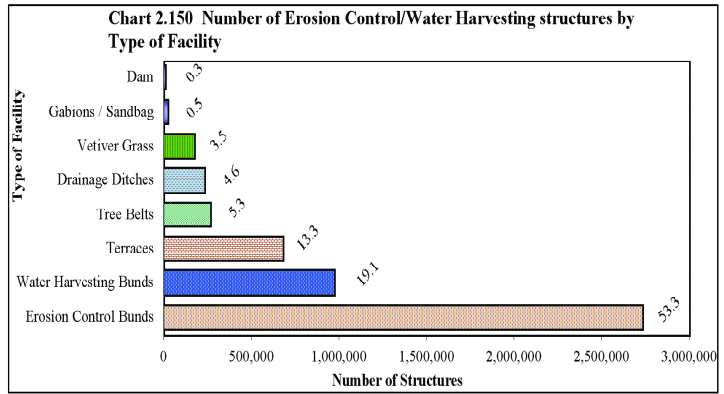
The number of households with erosion control or water harvesting facilities on their farm is 473,075 (472 313 households on the Mainland and 762 in Zanzibar) which represents 10 percent of the total number of agriculture households Chart 2.148).

Kilimanjaro has the highest percent of households with these facilities (31% of the total agriculture households) followed by Iringa (21%), Arusha (19%) and Mbeya (17%). Pwani, Zanzibar, Lindi and Mtwara have the lowest number and percent of households with these facilities (less than 1%). Some of the main crop producing regions (Shinyanga, Morogoro and Tabora) has the lowest percent of households with these facilities (Chart 2.149 and Map 2.103).

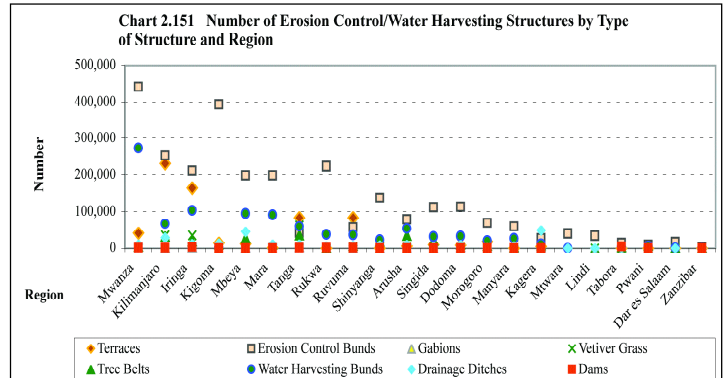


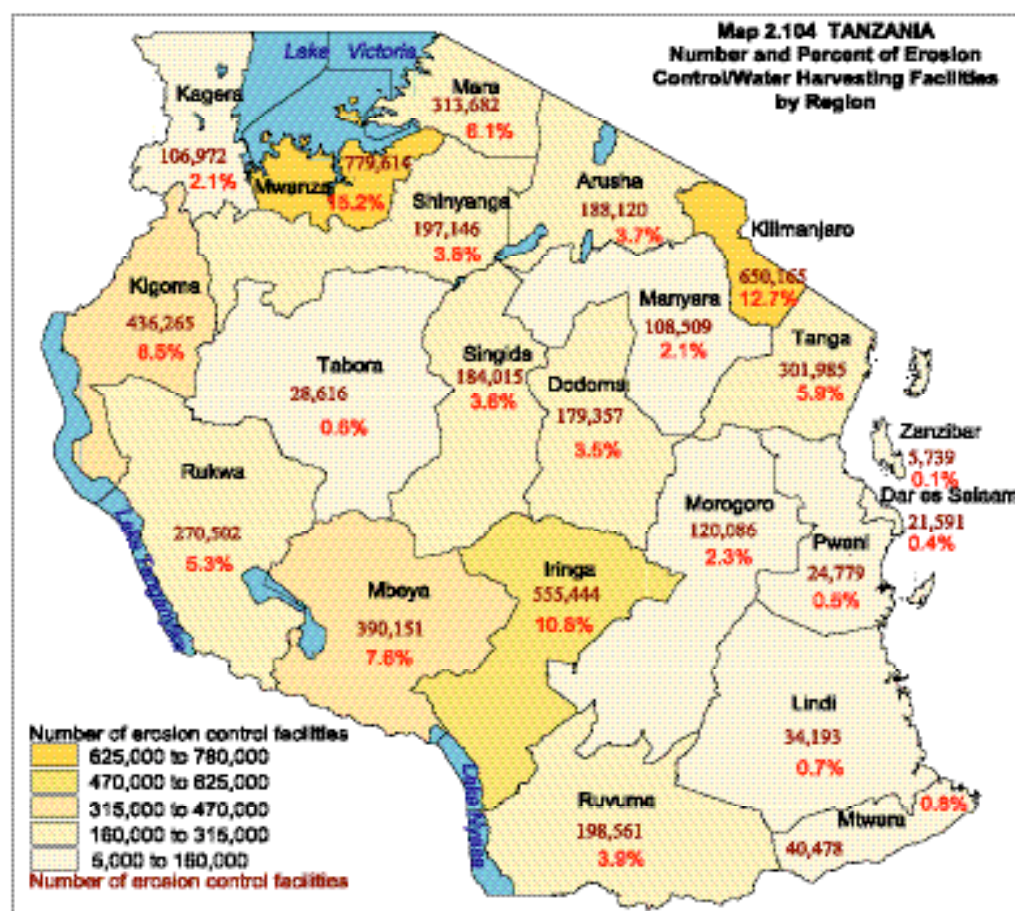
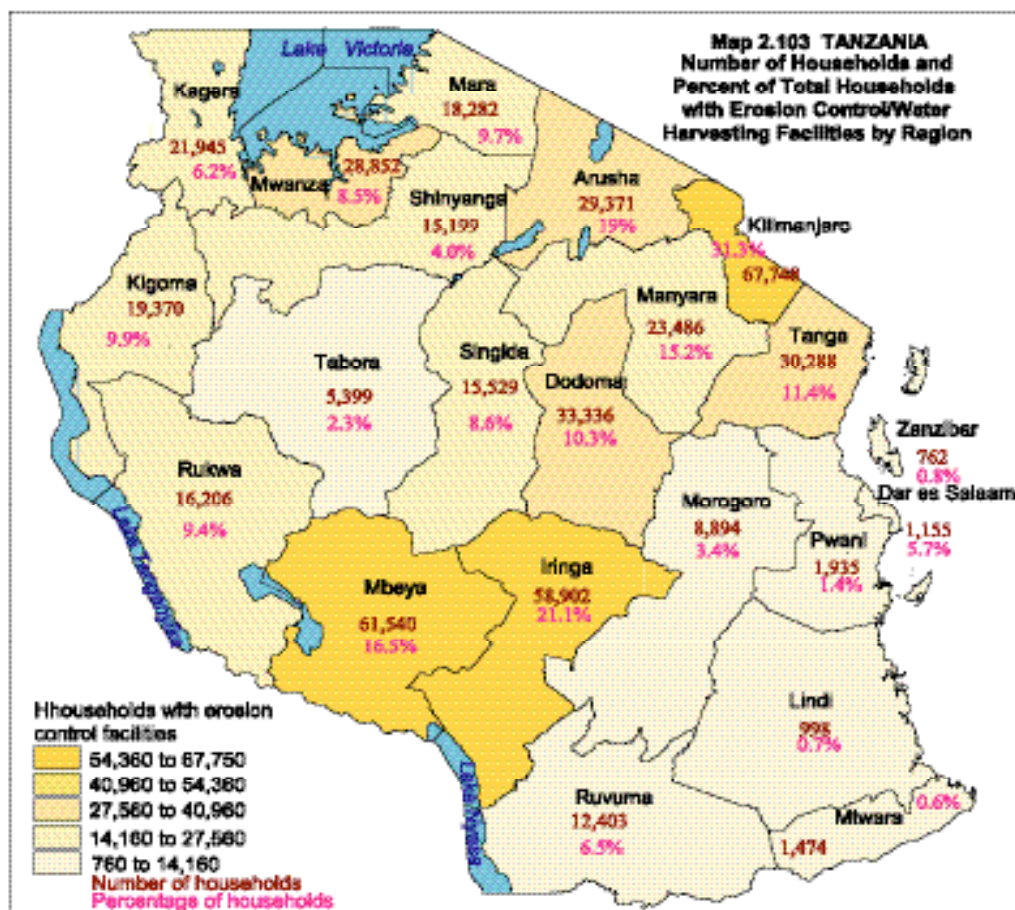


Erosion control bunds are the most common structure (2,734,828 structures or 53% of the total number of erosion control/water harvesting structures) and are almost three times greater in number than the next most common structure. This is followed by water harvesting bunds (19%), Terraces (13%) and Tree belts (5%) (Chart 2.150).



Mwanza has the highest number of bunds (450,000) followed by Kigoma (400,000). Kilimanjaro, Iringa, Mbeya and Mara regions have the highest number of terraces, whilst coastal regions (with the exception of Tanga), have very little water harvesting/erosion control bunds. Tree belts are more common in Tanga and Arusha than in other regions. Vetiver grass is also mostly used in Tanga and Manyara regions (Chart 2.151 and Map 2.104)





3.0 CONCLUSIONS AND RECOMMENDATIONS

The Agriculture Census collected a large amount of data on crop and livestock production and planted area, input use, agro-processing and storage, marketing, farmer access to support services, natural resources and infrastructure, rural demographics, poverty and livelihood. The analysis of the crop sector contained in this report mainly focuses on production, area under production and productivity. Data on crops are compared with those of previous censuses and surveys at national level to identify structural changes that occurred between the census periods.

The conclusions chapter has three main sections: The first section describes the current status of agriculture in Tanzania, the second section discusses the main findings of the Agriculture Sample Census in relation to poverty reduction and household food security issues and the last section gives regional crop production profiles.

3.1 Current Status of Agriculture in Tanzania

The crop sector plays an important role in the Tanzania economy providing jobs, sustenance and income to 4,858,810 rural households growing crops (representing 99% of the total number of farming households in the rural areas and 95 percent of the total rural households). The number of crop growing households has increased by 32.2 percent since the last census.

The total planted area with annual crops was 7,818,620 hectares and 1,234,999 hectares for permanent crops giving a total planted area of 9,053,619 hectares. The planted area more than doubled since the last census and most of this increase was over the period 1996 to 1998. (Issues relating to land area, declining productivity and land pressure are presented in section 3.3). There is a wide variety of crops grown in the country (over 95 types), however, small holder crop production is very much dominated by maize. Other important food crops are cassava, bananas, paddy, beans and groundnuts. The rest of the crops are grown in small amounts, however some have significant importance in certain areas where the climate may be more suitable for their production for example tea and coffee. Similarly, in terms of area planted, production and number of farmers that grow cash crops like cotton and tobacco, they are of minor importance at national level (occupying only 5% of the total planted area) when compared to other crops, but they are important in the few regions that grow them (e.g. 22% of the planted area of annual crops in Shinyanga is planted with cash crops).

Maize is grown extensively and in every region of the country. With the exception of seed, there is virtually no investment in crop production. With minor amounts of fertilizer being applied and pesticide use virtually absent especially on food crops, crop yields are very low. The planted area more than doubled since the last census and most of this increase was over the period 1996 to 1998. The average planted area of 1.61 hectares per household for annual crops is low to support an average size smallholder household and is insufficient to allow smallholders to move beyond subsistence existence. This is especially true in the less productive areas of Tanzania. It is also important to note that the best crop producing areas in Tanzania have less available land for cultivation. In regions like Kilimanjaro the average land area per household is only one hectare (land access is discussed in more detail in the next section). Land ownership through formal titles/deeds is at a very low level and little change has taken place since the last census with most of the land under customary rights.

For most regions trees are not widely planted by smallholder households, however they are especially important in Iringa, but also in Mbeya, Kagera and Ruvuma. Less than fifty percent of the regions in the country receive a significant short rainy season. However the short rainy season is important for some of the regions that receive them. Among the root and tuber crops cassava is the most important with about a quarter of the crop growing households growing cassava. Beans are also relatively important and are predominantly grown in the long rainy season.

Over fifty percent of the oilseeds are planted in four regions (Dodoma, Kilimanjaro, Arusha and Singida). There has been a steady increase in the production of beans and groundnuts since the last agriculture census. In most regions cash crops are unimportant. Permanent crops are less important than annual crops as they occupy around one seventh of the total planted area. Cashew nuts and coconuts are important crops in coastal regions whilst coffee and bananas are important in the highland regions of Tanzania.

Capital investment in smallholder agriculture is virtually absent with only very small areas with the irrigated area being very low and there has been no improvement in the last 10 years. Extension services have a relatively high coverage however this has not resulted in an increase in production. Some of the highest crop producing regions receive less extension than other regions. Hand cultivation is the predominant means of cultivation, however there are also substantial areas cultivated using oxen especially in the high cattle producing regions in the north of Tanzania.

There are practically no credit facilities and most households purchase implements through the sale of crop products. Large scale farms provide very little services to smallholders. Whilst most storage is unprotected smallholders only reported a small storage loss, possibly due to the short storage period. Apart from the price of produce, accesses to markets/transport costs are the main marketing problems reported by smallholders. Agro-processing is mainly done by neighbours machines and to a lesser extent on farm by hand. The sale of processed products is almost non existent with most products being consumed by the household.

The majority of crop growing households in Tanzania are subsistent farmers and are at the low end of moving to self supporting, profit making entities. A large amount of support is required to transform these subsistence farms into profit making entities and the following section presents some of the key constraints to poverty alleviation for smallholders in the crop production sector in Tanzania.

3.2 Important Issues

Many interesting issues have emerged as a result of the analysis of this census and these have an impact on poverty reduction, household food security and the modernization of smallholder agriculture. This section discusses some of the main findings in relation to these issues. The discussion is based on both static data produced by this census and time series data from other censuses and surveys (District Integrated Agricultural Survey 1998/99, Integrated Agriculture Survey 1997/98 Expanded Survey of Agriculture 1995/96, National Sample Census of Agriculture 1994/95 and Agriculture Sample Survey 1998/90) Nevertheless, the opinions in this section of the conclusions may not represent the opinion of the government or other stakeholders and the main purpose is to raise interest and stimulate discussion and come up with concrete strategies to resolve these important issues. These issues are in relation to:

- Reduction in productivity and fertilizer use,
- Access to fertilizers and chemical inputs
- Access to land,
- Increase in the number of smallholder households and land consolidation,
- Irrigation and lack of growth since the last census,
- Organic farming
- Tree farming as a substitute to food crop production
- Support of large scale farms to smallholder agriculture,
- Distribution of support services,

3.2.1 Reduction in Productivity and Fertiliser Use

One of the most important findings of the Agriculture Census is that a large increase in planted area has been offset by a reduction in productivity resulting in only a comparatively small increase in the quantity produced. This is particularly true for cereal crops which are the dominant crop type in the country. In contrast, pulses and groundnuts have experienced a large increase in production. The large increase in groundnuts and pulse production was also a result of an increase in planted area similar to that of maize, however the yield of these crops remained constant resulting in a much greater increase in production than that of Maize and other cereal crops. The main difference between cereals and pulses/groundnuts in relation to production is that cereals require high levels of nitrogen, whilst pulses and groundnuts manufacture their own nitrogen. This comparison strongly indicates that the reason for the reduction in productivity, especially in cereals is due to lack of fertiliser use. This is further backed up by the results in the fertiliser section which shows a low level of fertiliser use and a negative time series trend in the use of fertilisers over the same period as the reduction in productivity of cereals.

Recommendation: Steps should be taken to encourage the use of fertilisers and increase the productivity of the crop production sector in the country. Failure to address this issue will result in continuing stagnation of productivity and poverty in the rural areas of Tanzania.

3.2.2 Access to Fertilisers and Chemical Inputs

Very little inputs outside that produced on farm (farm yard manure and compost) are used. Of the improved inputs, improved seeds are the most used and most households have easy access to improved seed (32% of households within one km). Access to chemical inputs varied with some households having easy access and other households not. However, the high response of "cost" as opposed to the low response to "proximity of source" as the main reason for not using chemical inputs leads to the deduction that it is not the availability of inputs that is the main reason for the limited use. Rather it is cost related constraints that prevent the smallholders from using improved inputs. The response to cost does not vary much between region. As with improved seeds, it may be that if there was high demand for chemical inputs there would be high availability.

The response to smallholders ability to use the input was low suggesting that the extension services may in fact have been doing their job and, as with the last finding, it is the lack of other support to smallholders in the form of subsidy and credit that is limiting the use of inputs and thus productivity.

Recommendation: Without chemicals, especially inorganic fertilisers, the transformation from subsistence to profit making farms will not take place. They must be made available to the smallholders at affordable prices and they should be subsidised to ensure their use and thus increase the productivity and profitability of smallholder farms.

3.2.3 Access to land

It is generally said that there is an abundance of land in Tanzania however the analysis contained in this report suggests that smallholders do not have access to sufficient land to meet their needs not only in terms of non subsistence but also subsistence needs. The analysis presented in this document does not give direct evidence of this; however, the following observations from the results provide a strong indication that this is the case:

- 1 The average land area per household is only 2 hectares. This means that there are small holders that have access to areas much larger than 2 hectares but more importantly there are smallholders that have access to areas much less than 2 hectares.
- 2 The total planted area has leveled off since 1998 after a large increase over the period 1995 to 1998 despite the increase in the rural population at a rate of 2.8 percent per year.
- 3 The percent of utilised land compared to available land is high and in some regions all available land is utilised. Given the fact that semi drought conditions prevailed during the year of the census one would have expected land utilisation to be less.
4. The total amount of land allocated to smallholders has not changed since the last census in 1994 when the area was 12,278,840 hectares. However, at that time the planted land area was only 2,574,000 ha. The current census results show that the planted area is 10,211,076 ha.

Recommendation: A discrete study is required to determine the minimum area of land that is required for a smallholder household to meet its subsistence needs and the area required to have self sustaining profit making farms in the different agro-ecological zones of the country. This should then be used to promote adequate sized profit making farms through the provision of startup capital and credit for inputs.

3.2.4 Increase in the Number of Smallholder Households and Land Consolidation

The impact of the large increase in farming households and increasing land area under production coupled with the small planted area per household is likely to prevent reductions in rural poverty in the near future. Land consolidation is required to increase the area under production per household to a level whereby smallholder farms can be self sustaining economic entities. This would involve reducing the number of households involved in farming by promoting non farming activities and education in the rural areas. Land reform and the issuance of land titles are required in order to allow these farmers to purchase and consolidate other farmers land. This process has taken place in most developed country and it is one of the phases that has to be done to move from subsistence based poor farming society to a thriving profit making rural community.

Recommendation: Land reform policies should promote land consolidation and without further expansion into virgin areas. The issuance of official land certificates should be fast tracked and non farming economic activities should be promoted in the rural areas.

3.2.5 Irrigation and Lack of Growth since the Last Census

Water is the limiting factor to crop production in many areas of Tanzania and without irrigation any other intervention to increase production and productivity is limited in these areas. There was zero growth in the number of households with access to irrigation over the last intercensal period (1994 to 2003).

Recommendation: Efforts must be made to ensure that irrigation schemes become a reality and they should be supported with startup capital to ensure rapid expansion in areas suitable for irrigation development.

3.2.6 Organic Farming

Whilst it is important to encourage the use of chemical inputs in many areas of the country in order to improve productivity, there are areas in Tanzania that are suitable for organic farming, especially those with high levels of livestock, suitable soils, available water (rain fed or irrigated) and access to markets.

Recommendation: Areas suitable for organic farming should be identified and officially registered as chemical input free. Initiatives should be put in place to encourage farmers to adopt this method of farming in these areas. Research institutions should investigate the potentials of these areas and carry out adaptive research to support this initiative. Organic Certification is required to make sure the land is free from manufactured chemical input before produce on the land can be sold as organically grown. The Bureau of Standards in Ethiopia is responsible for issuing these certificates and the government needs to make contact to fast track this. Markets for the sale of these products should be identified to maximize farm gate prices.

3.2.7 Tree Farming as a Substitute to Food Crop Production

The value of trees is growing at an exponential rate, especially for indigenous trees which are declining in numbers through deforestation activities. One of the best ways of conserving this valuable resource and maintain the genetic diversity of tree species in Africa is by promoting tree planting by smallholders. In certain areas trees can totally substitute food crop production and, whilst establishment may take some time, the value of the end product is currently high and increasing. This scheme has many advantages in relation to erosion control, soil water retention, wood for fuel, availability of building material, flora and fauna conservation, eco-tourism, etc.

Recommendation: A study is required which includes the identification of suitable indigenous tree species, silviculture techniques, world market prices, internal and international restrictions and methods of incorporating tree farming into the current food production farming system.

3.2.8 Support of Large Scale Farms to Smallholder Agriculture

Caution must be taken in depending on large scale farms for providing services to smallholders as a policy to relieve poverty. Due to the fact that large scale farms in the country are few (1,254) and they are usually sited in the highly productive areas of the country, they would only be able to provide services to a very small portion of the rural population which may not be the poorest. In addition to this distance of outreach is limited to some kilometers from the farm. Furthermore the census data indicates that currently there are few services provided by large scale farms to smallholders. All these factors suggest that whilst large scale farms are important in providing services to attached out-growers they are not going to resolve the problems faced by the majority of smallholders in the country.

3.2.9 Distribution of Support Services

Apart from extension, services to support smallholder crop production are at a very low level. Even though the census used extension agents to enumerate the smallholder questionnaire, one should not necessarily discount the quality of the extension services presented in the results due to bias during the enumeration. Extension agents are the front line staff between the government and the farmer and they often have a high contact rate as they live in the village. Extension agents can only teach the improved technologies. These technologies often require other support services or policies for the farmer to adopt them e.g. access to affordable fertiliser, credit, etc.

Recommendation: Inputs and services should be provided to smallholders at affordable rates. Subsidies/grants should be given to help smallholders change from a subsistence base to a profit making economic entities. European agriculture did not develop without this type of assistance and Tanzania requires the same.

3.2.10 Reinstating Frequent Surveys, Previously Carried out by the Ministry of Agriculture and Cooperatives.

Many of these issues discussed in this section stem from trend analysis from previous agriculture surveys which were undertaken in frequent intervals. They have proved to be extremely useful and will continue to be used in trend analysis for many years to come. The questionnaire used for these quick surveys require slight modification but should remain simple and the analysis should be minimal. It is during the years of the census that an extensive analytical document will be prepared.

Recommendation: Agriculture surveys should be repeated every two years.

3.2.11 Transformation of the Extension Services from a Package Driven System to an Advisory Service

The census results show that the extension services have a relatively high contact rate, however this has not resulted in a concomitant increase in productivity and indicates that the package system does not work especially when the package only comes with the advice and not with the support to use the improved technology. With decentralization of extension services to region and district levels, the National Sector Ministries of Agriculture, especially the Department of Extension Services need to change from planning and supporting a package driven system to an advisory service. This advisory service would support extension agents by providing specialist advice to crop production problems and in the dissemination of new interventions. To support this, information systems are required such as:

- Diagnostic Databases
- Subject Matter Specialist Database
- Access to Library Documentation
- Crop and animal husbandry tools
- Farmer decision making tools
- Market Information Systems

Many of these systems are either available at FAO, Commonwealth Agriculture Bureau of Information (CABI), USDA and other organisations or are existing databases, however they require adapting to suit the needs of the extension services. CABI has a comprehensive pest and disease database that was originally designed for scientists in the field of entomology. International funding is required to build a front end to this application in order to make it suitable for extension agent use. The Subject Matter Specialist database can be developed in Tanzania. FAO has a comprehensive database on textual documents which can be accessed over the internet or on CD. FAO also has a market information system and this needs to be assessed to determine its appropriateness.

Recommendation: Systems that can be developed in Tanzania should be designed and developed. Off the shelf applications require evaluation to determine their suitability and specialist applications held by international organisations that require modifications to suit this initiative should be given support from International Development Partners.

3.3 Regional Profiles

The following profiles summarises the status of crop production in each region and are presented in order of importance in relation to the land area in each region. It must be noted that some regions have a higher planted area due to double cropping (in long season and short season) as is the case Tanga which has one of the highest planted areas of maize, yet only a moderate physical land area.

3.3.1 Shinyanga

Shinyanga has the largest area of land under cultivation (over 1,250,000 ha) and has the highest land utilisation per household (over 2.6 hectares for annual crops). Virtually no permanent crops are grown and it has the largest area of pasture to supports the high population of cattle in the region. A large proportion of smallholder households in the region felt that they did not have sufficient land. The region has the largest planted area of maize and second largest for paddy and sorghum than other regions in Tanzania, however it had one of the lowest yields for maize during the census year. During the Census year planting was largely during the long rainy season.

The region is not important for cassava, beans and fruit and vegetable production but, it has the third largest planted area of groundnuts in the Tanzania. In terms of cash crops, Shinyanga is the most important region for cotton production.

Considering Shinyanga has the largest planted area of crops, it has one of the smallest areas of irrigation. It also has the largest planted area cleared by hand but most soil preparation is done by oxen. Most of the planted area is without fertiliser and the small area that has, it is with farm yard manure. Low fertiliser use and lack of irrigation facilities may have contributed to the low yields for this region. Although small, it has the largest planted area with insecticide and fungicide application. Over half of the crops stored are in sacks or open drums with the remainder in locally made traditional structures. Crop processing is predominantly done by neighbours' machines and the processed production is for home consumption.

Considering Shinyanga is one of the most important crop growing regions, it only has moderate contact with extension services. The region relies more on animal draft than most other regions. The region has one of the smallest areas of planted trees per household and lowest percent of erosion control facilities in Tanzania.

3.3.2 Dodoma

Dodoma has the second largest land area under cultivation (750,000 ha) with over two thirds under annual crops and most of the remaining under annual mixed crops. Very little permanent crops are grown by smallholders in the region. Almost all land area allocated to smallholders in the region is utilised indicating the possibility of land pressure, however only 37 percent of smallholders reported that they have insufficient land. Whilst Dodoma does not have a short rainy season, it has the second largest planted area of maize in the country and one of the largest areas planted per household, however the yield during the census year was amongst the lowest in the country. Paddy is not important in the region, however it has the third largest planted area of sorghum in the country. The region as a whole is not important for cassava or bean production however, the households that do grow cassava and beans grow more than households in most other regions. Dodoma has the largest planted area and one of the highest production of groundnuts in the country. The region is not important for smallholder vegetable production and annual cash crops, however it has the second largest planted area of pigeon peas in the country.

Dodoma has one of the smallest areas of irrigation in the country. The region has the highest percent of land clearing by burning in the country and the largest area of land cultivated by hand. Land cultivated by oxen is moderate and, although small, has one of the largest areas cultivated by tractor. Compared to other regions, it has the second largest area without fertiliser in the country. Approximately one sixth of the planted area was applied with farm yard manure. Chemical inputs are used in very small quantities.

Approximately 70 percent of stored crops are in sacks or open drums, with the remainder in traditional cribs. Most processing is done by neighbours' machines and the region has the fifth largest number of households selling processed produce in the country. Smallholders in Dodoma have above average access to extension advice. The most common implement is the hand hoe although some oxen and other implements are also available.

Dodoma has a small amount of trees planted by smallholders and has a comparatively moderate amount of erosion control facilities.

3.3.3 Mwanza

Mwanza has the third largest utilised land area (approximately 700,000 ha) most of which is planted with annual crops, however permanent crops are also grown mainly as mixed crops with annuals but also small amounts of permanent mono-crop stands exist. The percent of land available to smallholders that was utilised during the census year was average compared to other regions, however the response to insufficiency of land was high (57%). Mwanza has two planting seasons and the short rainy season had a greater planted area than the long rainy season during the census year, however the area planted per household was greater in the long rainy season than in the short rainy season.

The region has the largest planted area of maize and paddy per square kilometre and the largest planted areas under cassava in the country. It also has the second largest planted areas of cotton in the country. Compared to other regions, the area under sorghum and bean production is moderate to low. Vegetable production in Mwanza is moderate. Of the permanent crops mangos and oranges are the most important.

The region has the fourth largest planted area under irrigation, however the number of households practicing irrigation has remained unchanged over the last 10 years. As with most regions, most land clearing is done by hand slashing. The region has the third largest planted area cultivated by oxen, however around 60 percent is cultivated by hand. Eighty percent of the planted area had no fertiliser, the remaining area was applied with farm yard manure and virtually no chemical fertiliser was used.

Mwanza has the highest percent of unprotected storage in Tanzania with approximately 80 percent of households using sacks or open drums for storage. Most processing was done by neighbours machines and of the small amount of processed products sold, most was to the local market/trade store. The region had one of the lowest percent of households receiving extension services in the country.

It has low to moderate number of trees planted by smallholders and a moderate number of households with erosion control/water harvesting structures, however it has the largest number of erosion control and water harvesting bunds in the country.

3.3.4 Tabora

Tabora has a land area of around 600,000 hectares under cultivation. It is characterised by annual cropping with a very small amount of permanent crops. The percent of land available to smallholders that was utilised during the census year is one of the lowest in the country. This, coupled with its having one of the lowest number of crop growing households per square kilometre in Tanzania may indicate that there is more than sufficient accessible land in the region to satisfy the needs of the smallholder households. This is reflected by the low number of households responding to insufficiency of land. The region has only one planting season (the long rainy season).

Tabora has the fourth largest planted area of maize and rice in the country, however the yields during the census year were low. Although not the largest sorghum producing region, it has one of the largest area planted per household. It is a predominant tobacco growing region and has the second largest planted areas of groundnuts and onions in the country. Cassava and beans are of moderate to low importance in the region. Permanent crops consist of small areas of mangos and oil palm.

Although small, the region has a moderate planted area under irrigation and the number of households using irrigation has remained stable over a 10 year period. Wells and dams are the most common source of water for irrigation. Land clearing is predominantly by hand, however around half of the households use oxen for cultivation while the other half cultivates by hand. Tabora is one of the four regions in the country that uses noticeable quantities of inorganic fertilisers however, as with all other regions most of the planted area has no fertiliser application. Small amounts of insecticides and fungicides were used and the region is placed second in the use of these inputs. Crops are either stored unprotected or in traditional cribs. Compared to other regions, the percent of households selling crops was low. Practically all crop processing was done on neighbours machines, with small amounts sold to neighbours. A low percent of households received extension services in Tabora compared to other regions. Smallholders do not plant trees in Tabora and there are virtually no erosion control/water harvesting structures in the region.

3.3.5 Mbeya

Mbeya has a land area under crop production of 575,000 hectares. It is dominated by annual crops but it has some mono and mixed permanent crops. The land area per household is below average for the country and the percentage utilisation of available land is high suggesting insufficient land. This is confirmed by a 49 percent of smallholders responding to insufficiency of land. Although Mbeya has a short rainy season it is not very important and has only a very small planted area.

Mbeya is one of the important cereal production regions in the country and it has the sixth largest planted area of maize, with one of the highest yields of maize in Tanzania which results in the region being the second highest producer. It has the fifth largest planted area of paddy and the second highest production. Moderate amounts of sorghum are grown.

Although it has the fourth largest planted areas of beans, it has the highest production in the country. Groundnuts are grown in moderate quantities and are moderately important for the production of vegetables. Tobacco is grown in relatively small quantities but has the fourth largest planted area in the country. Cassava is not important in the region.

Mbeya has the largest planted area of coffee, second for oil palm and third for bananas. It has moderate quantities of mango, oranges and some sugar cane is produced.

The region has the largest planted area of annual crops under irrigation in Tanzania and the number of households using irrigation has not changed in the last 10 years. It has the highest number of households using rivers as a source of irrigation water and it has one of the highest number of households where gravity is used as a method of obtaining irrigation water. It also has the second highest number of households using flood irrigation. Land clearing and preparation is mostly done by hand, however a third of the land clearing is done by oxen.

Although no fertiliser is applied to most of the planted area in Mbeya, it has one of the highest area of inorganic fertiliser application. A small amount of farm yard manure is used. Although small, it has a moderate to high application of pesticides compared to other regions.

Mbeya had one of the largest utilisation of maize in the country during the census year and it had the third largest quantity stored. Most storage is in sacks/open drums and locally made traditional structures. It has the second highest number of households selling crops. Most processing in the region is done by neighbours' machines and it has the highest percent of households selling processed products. The region has one lowest percent of households selling to neighbours. Instead, smallholders sell to traders at farm and farmer associations. Mbeya has the second largest number of households in the country receiving extension services.

Mbeya is the second most important region for tree planting in the country, with over 20,000,000 trees planted by smallholders. The main species are Cyprus, eucalyptus and pinus. It has the second largest number of households practicing erosion/water harvesting control, however it does not have the highest number of facilities. Most of them are erosion control and water harvesting bunds.

3.3.6 Ruvuma

Ruvuma has a land area of 575,000 hectares under crop production. Although it has a moderate number of crop farming households compared to other regions, it has one of the lowest number of crop growing households per square kilometre. The available land area per household is 3.6 hectares. Of the total available land in the region, it has one of the lowest land utilisation percentages in Tanzania and this is reflected by the lowest number of households responding to insufficient land.

Ruvuma has no short rainy season. Compared to other regions, the average planted area of annual crops per household is above average.

Cereal production in the region is moderate and is mostly maize and paddy production with one of the smallest areas of sorghum in the country. Cassava is an important crop in the region and the planted area of tobacco is the second largest in the country. Beans and groundnuts are produced in moderate to low quantities, however the region is important for vegetables production.

Ruvuma is the second most important region for the production of cashew nuts, fourth for coffee and fifth for oranges. Sugar cane and pigeon peas are also grown in the region.

The region has a small but moderate level of irrigation compared to other regions. There has been no change in the number of households with irrigation over the last 10 years. The main source of water for irrigation is from rivers and the method of obtaining irrigation water is mostly by buckets/watering cans, however this is closely followed by gravity. Buckets/watering cans are also the most common methods of applying irrigation water. Practically all land is cultivated by hand.

Almost 50 percent of the planted area in Ruvuma has an application of fertiliser and it has the highest percent of inorganic fertiliser application in the country. It has a low to moderate application of pesticides compared to other regions in the country.

Most storage is in sacks/open drums and this is closely followed by locally made traditional structures. The region has the highest percent of households selling crops in the country. Most processing is done by neighbours machine and very little of the processed crops is sold.

The number of households receiving extension is moderate to low. The predominant implement used in the region is the hand hoe, however it has the highest percent of hand powered sprayers and the second highest percent of threshers/shellers. Ruvuma is the fourth region with largest number of planted trees mostly eucalyptus. The number of households with erosion control/water harvesting structures is low, however it has a moderate number of terraces compared to other regions.

3.3.7 Iringa

Iringa has a land area of 500,000 hectares under crop production and the large majority of this land is planted with annual crops and it has a higher than average number of crop farmers compared to other regions. It has a moderate to low number of crop growing households per square kilometre compared to other regions. The available land area per household is 2.4 hectares, however the area of land utilised per household was less than the national average of 2.0 ha. Although the region receives only the long rainy season, Iringa is considered to be one of the more productive regions in Tanzania.

In terms of planted area, the region has a moderate planted area of cereals which is almost entirely with maize and virtually no paddy or sorghum production. Whilst the region has the fourth largest planted area of maize, it is characterized by having the highest production in the country due to higher yield than other regions with a larger planted area. It has a moderate to high planted area of beans, however it has the second largest quantity produced. During the census year it had the highest production of Irish potatoes, tomatoes, cabbage and peas than any other region in the country. Very little cassava and groundnuts are grown and virtually no traditional annual cash crops are grown in the region.

The planted area of permanent crops is small, however some bananas, coffee and tea are grown by smallholders.

Iringa has the second largest planted area with irrigation in Tanzania, however it only has a moderate percent of total planted area under irrigation. Rivers and canals are the most common sources of irrigation water, but wells are also used. Over fifty percent of households use buckets/watering cans for obtaining water, whilst the remaining households use the gravity method and the water is applied by buckets/watering cans and gravity. Most land preparation is done by hand, however approximately one third is by oxen.

Iringa has the highest percent of planted area with fertiliser (about 50% of the planted area). Of the area with fertilizer, half of it is applied with inorganic fertiliser and the other half with farm yard manure. It has the largest planted area with inorganic fertiliser. The region also has the largest planted area with pesticide application compared to other regions.

Iringa had the second highest quantity of maize stored in Tanzania however half was in sacks or open drums and the remainder in locally made traditional cribs. The region has one of the highest percentages of households processing crops and the vast majority is processed by neighbours machines. Most of the processed produce was sold to neighbours with small amounts to traders at the farm.

The region has the highest number of households receiving extension services and also the highest in terms of percent of number of households per region. It has the highest number of trees planted by smallholder households in the country (over 45,000,000) with Pinus being the dominant species. Some eucalyptus and cyprus are also grown. The region has the second highest number of households with erosion control/water harvesting bunds in Tanzania with erosion control bunds and terraces being the most common.

3.3.8 Kagera

Kagera has a land area under crop production of 490,000 hectares. The region is characterised by having less than fifty percent of its land area with annual crops, whilst the remaining is either pure or mixed permanent crops or permanent – annual mix. Kagera has 1.0 hectares of land per household and almost all available land is utilized. The region has two seasons, with the short rainy season being more important

Cereal production is not important and the region has one of the smallest planted areas of maize, paddy, sorghum and cassava. It has a highest planted area of beans. Vegetable production is moderate and small amounts of cotton and tobacco are grown as cash crops. It has the highest production of coco yams and is the second highest producer of yams and sweet potatoes in the country.

Kagera has the second highest percent of planted area under permanent crops in the country and this is dominated by bananas (highest planted area in the country) and coffee (second highest). The region also has small areas of sugar cane.

The region has a small area under irrigation and the number of households with irrigation has remained unchanged over the last 10 years. Kagera has one of the smallest percent of planted area with fertilisers and virtually no inorganic fertiliser is applied. Similarly virtually no pesticides are used.

Kagera has the largest number and percent of households selling crops in the country. However, it has a moderate to high percent of households processing crops and most processing is done by neighbours machines. The region has the second highest percent of households processing crops by trader and the highest percent of households selling processed products to traders.

The percent of households receiving extension is one of the smallest in the country. Virtually all crop husbandry is done by hand and hand hoe.

Kagera region has the third highest number of trees planted by smallholders in the country, mostly with eucalyptus. Few households have erosion control or water harvesting structures, however it has the highest number of drainage ditches in the country.

3.3.9 Tanga

Tanga region has a land area of around 470,000 hectares under crop production and it has a relatively large number of crop growing households compared to other regions. It has the fifth largest number of crop growing households per square kilometer. The available land area per household is low (1.8 ha/household) with a utilized land area of 1.5 ha per crop growing households. Whilst most of the region is under annual crop production, it has significant areas of permanent crops mainly planted as a mixture with annual crops. It has the sixth largest planted area of cereals with maize having the third largest planted area in the country. The region has the third largest planted area of beans in the country and vegetable

production is important with the exception of onions. Paddy and cassava production are low and sorghum is almost absent in the region.

Important permanent crops are oranges having the largest planted area in the country and coconuts and sugar cane having the second largest planted area. Small quantities of bananas, cashew nut, mangoes, coffee and pigeon peas are produced.

Compared to other regions, Tanga has a moderate planted area with irrigation and the number of households practicing irrigation has remained more or less unchanged over the a period of 10 years prior to the census. The source of irrigation water is equally split between rivers and canals. Gravity is the most common method of obtaining irrigation water closely followed by buckets/watering cans. Irrigation application is equally split between buckets/watering cans and flood.

The method of cultivation in Tanga is almost entirely by hand. A very small quantity of fertilizer is used and is mostly farm yard manure and compost to a lesser extent. Virtually no pesticides are used. Compared to other regions, smallholder households in Tanga store moderate quantities of maize. Most of the storage is mostly in locally made traditional cribs, with small amounts stored in sacks or open drums.

A relatively high number of households sell crops compared to other regions. The large majority of households process their crops by neighbours machines and very few households sell their processed produce.

Compared to other regions, the number of smallholders in Tanga receiving extension services is moderate to high.

Tanga has a small number of planted trees by smallholders and the species is mainly *gravellis*. Compared to other regions, the percent of households with erosion control/water harvesting facilities is moderate to high with terraces being one of the most prominent.

3.3.10 Mtwara

Mtwara has around 460,000 hectares for crop production and the number of crop farming households is moderate compared to other regions, however, due to the small land area, the region has one of the largest number of crop growing households per square kilometer in the country and this is reflected by the high percent of available land that is utilized. The region is characterized by having the highest percent of its total planted area under permanent crops, most of which are in monocrop stands. The region gets the long rainy season only.

Cassava is one of the most important crops in Mtwara and it has the third highest planted area in the country. In terms of planted area, the region is not important for cereal production and the yield for maize was one of the lowest in the country during the census year. Comparatively moderate quantities of sorghum and paddy are grown. Moderate quantities of groundnuts are grown and relatively small amounts of beans. Vegetables are not important in the region and traditional annual cash crops are virtually absent. The main crop in Mtwara is cashew nuts with 55 percent of the total planted area with cashew nuts in the country. Some mangoes and coconuts are also grown.

Mtwara has virtually no irrigation. Soil preparation is 100 percent by hand and apart from Lindi it has the least pesticide application in the country. It has one of the smallest storage of maize in the country and is mostly stored in locally made traditional cribs. A moderate number of households sell crops. The majority of processing is done on farm by hand and a comparative moderate number of households sell processed crops and most of this is to neighbours. Extension services are provided to a very small number of smallholder households in Mtwara.

No tree planting by smallholders is carried out in Mtwara and the number of households with erosion control/water harvesting facilities is almost non-existent.

3.3.11 Morogoro

Morogoro has a land area of 450,000 hectares under crop production. Although it has a moderate to high number of crop farming households compared to other regions, it has a low to moderate number of crop growing households per square kilometre. Compared to the total area under permanent crops in Tanzania, Morogoro has very little smallholder planted area, however the region is very important for certain permanent crops. Most of the crop growing households do not have livestock. Compared to overall average planted area per crop growing household with annual crops (1.61ha), the region's is above average at 2.0 hectares. The region has a moderate level of land utilisation and this is reflected by the average number of households responding to insufficient land.

Morogoro has both long and short rainy seasons. The planted area during the short rainy season is half of that in the long rainy season. In terms of planted area, Morogoro is the fourth most important region for cereals in Tanzania. It has a moderate planted area of maize but the largest planted area of paddy in the country. However, the production of maize was very low during the census year and as a result had one of the lowest yields in the country. The yield of paddy was average. Sorghum, cassava, beans and groundnuts are grown in small quantities and cash crops are not important in the region.

Morogoro is an important region for the production of vegetables and it has the largest planted areas of tomatoes, cabbage, cucumber and cauliflower and the third largest for onions. During the census year, the yield of most vegetables in Morogoro was less than that of Iringa.

The region has the largest planted area under sugar cane and is the third for oranges. Coconuts, oil palm and mangoes are also grown in small quantities.

Although small, Morogoro has the sixth largest planted area with irrigation. There has been a sharp increase in the number of households with irrigation (almost 300%) over the last 10 years. The source of water for irrigation is mostly from rivers and is mostly gravity fed. The method of water application is split equally between flood and buckets/watering cans.

Land cultivation is almost 100 percent by hand. However, even though minor, it has one of the largest areas cultivated by tractor. Virtually no fertiliser or pesticides are used.

Very little maize was stored during the census year and it has one of the lowest percent of maize stored. Storage is predominantly in sacks or open drums followed by locally made traditional cribs. A moderate number of households sell crops compared to other regions. Most of the households process crops by neighbours machine, however on farm hand processing is higher than in many other regions. Very few households sell processed crops and those who process, sell mostly to neighbours. The number of households receiving extension services is low.

The region has relatively few planted trees by smallholder households and they are mostly *gravellis* species. It has one of the smallest numbers of households with erosion control/water harvesting facilities in the country.

3.3.12 Rukwa

Rukwa has over 340,000 hectares of land under crops and is dominated by annual cropping. It has one a moderate to high available land area per crop growing household and the smallest percent utilized. Of the 3.0 ha per crop growing household

land available only 2 ha was utilized. The number of crop growing households is moderate to low. The region has no short rainy season.

Rukwa has a moderate planted area of cereals the majority of which is maize, however it is the fifth most important region in terms of the quantity produced. Beans and groundnuts are planted in moderate amounts and the region is the fourth most important in terms of quantity produced. Paddy is produced in moderate to small amounts compared to other regions and a small amount of sorghum is also produced. Cassava is produced in moderate to low amounts. Rukwa is not important for vegetable production, however a small amount of tobacco is grown. Rukwa has the smallest percentage of the total planted area of permanent crops in the country.

The area under irrigation in Rukwa is moderate to low compared to other regions and the number of households with irrigation has not changed for 10 years. For the small number of households with irrigation, the source of irrigation water is mostly from rivers, the method of obtaining water is largely by gravity and application of the irrigation water is mostly by flood. More than half of the land cultivation is done by oxen and the region is one of the few regions using non manual cultivation methods. Fertiliser application is almost non existent and little pesticides are used.

Rukwa stores a relatively large amount of maize mostly in sacks/open drums. A high percent of households in the region sells crops. Most processing is by neighbours machine and it also has one of the highest percentages of processing done by traders. Few households sell their processed crops, mostly to neighbours. Rukwa receives the second least amount of extension services per household.

The region has a small number of planted trees by smallholder households, and most of these are eucalyptus. It has a moderate number of households with erosion control/water harvesting facilities and most of them are for erosion control.

3.3.13 Singida

Singida has a land area of around 360,000 hectares under smallholder crop production and the region is characterized by having virtually no permanent crops. The land area utilized per crop growing household is 2 ha and a high percent of the land area available is utilized. The number of households per square kilometer is relatively low. The region only has a long rainy season. In terms of planted area, the region is moderately important for cereals and whilst maize has a higher planted area than other cereals in the region, Singida is the most important region for the production of sorghum. The production of millets is also relatively important. Virtually no paddy or cassava is grown in the region, however beans, groundnuts and tobacco are produced in small quantities. With the exception of onions, vegetable production is not important.

Virtually no irrigation is practiced in Singida and the number of households practicing irrigation has not changed for 10 years. Cultivation is mostly by oxen and the region has one of the largest land area cultivated using non manual methods.

After Kilimanjaro and Iringa, Singida has the largest area of fertilizer application in the country and this is mostly with farm yard manure. Singida had very little maize stored during the census year. Most storage was in locally made traditional cribs. Very few households sell crops and it has the lowest percent of crop selling households in the country. Processing of crops is almost entirely by neighbours machine and there is virtually no sale of the processed produce. The number of households receiving extension services is relatively high.

There is no smallholder tree planting in the Singida. However the number of households with erosion control/water harvesting facilities is moderate to low and is mainly erosion control bunds.

3.3.14 Mara

Mara has a land area of 330,000 hectares under crop production and the number of crop growing households is small compared to other regions, however it has a relatively high number of crops and livestock growing households. The region has a moderate to high number of smallholder households per square kilometer. The land area available per household is moderate to high, however the utilized land area is below the average for the country resulting in one of the lowest land utilization rates in the country. The region has one of the highest areas of permanent mono-crops in the country. It has two seasons and the planted area in the short rainy season is around half that of the long rainy season. The average area planted per crop growing household in the long rainy season is 1.7ha and 0.9 ha in the short rainy season.

The region has a moderate to low planted area of cereals. Although maize has the largest planted area, the area of sorghum is fourth largest in the country and it has the highest production. The region has the second largest planted area of cassava, however beans and groundnuts are produced in very small quantities. The region has a moderate to low importance in tomato and cabbage production with minor quantities of onions. A small amount of cotton is grown in the region. Minor quantities of coffee, mangoes, sugar cane and oranges are also produced.

Moderate to low planted areas of irrigation exist in the region. Very few households practice irrigation and the number of households with irrigation has not changed significantly for 10 years. Most cultivation is done by using oxen. A small amount of farm yard manure is applied and virtually no pesticides are used.

Normally, storage is in locally made traditional cribs. The percentage of households selling crops is average for the country. Most processing is done using neighbours machines and only small amounts of the processed crops are sold and mostly to local markets/trade store (the highest percent using this marketing outlet in the country). The receipt of extension per household is moderate.

Mara has the fifth largest number of trees in the country and the dominant species are trichillia and eucalyptus. A moderate number of households have erosion control/water harvesting facilities and erosion control bunds is the most common followed by water harvesting bunds.

3.3.15 Manyara

Manyara has a land area of 325,000 hectares under crop production and has a low number of crop growing households compared to other regions. More than 50 percent of the crop growing households have livestock. The region has one of the lowest number of crop growing households per square kilometer, however the percent utilization of the available land is high, which suggests land pressure in certain areas. The area utilized per crop growing household is 2.1 ha. Very small areas are under permanent crops.

Manyara has a moderate planted area of maize compared to other regions. Paddy, sorghum, cassava and groundnuts are not grown in the region. The region has a moderate planted area of beans. Vegetables are not important in the region apart from a moderate to small planted area of onions. Manyara has the highest planted areas of pigeon peas in the country.

Very little irrigation is practiced in the region and time series data suggests that there has been a decline in the number of households with irrigation in the region over a period of 10 years. Half of the planted area is done by oxen. Compared to other regions, Manyara has a high percent of land cultivated by tractor and apart from Arusha, it has the smallest area cultivated by hand in the country. Approximately one third of the planted area has an application of fertilizer and is practically all farm yard manure. Small quantities of pesticides are used.

Relatively high quantities of maize were stored and storage is split equally between sacks/open drums and locally made traditional structures. A small number of households sell crops. Practically all processing is done on neighbours machines and the processed produce is not sold. The number of households receiving extension is small.

Manyara has a small number of trees planted by smallholder households and they are most pinus. The region has a relatively high percent of households with erosion/control and water harvesting facilities and the most commonly used is the erosion control bunds.

3.3.16 Lindi

Lindi has a land area of 272,000 hectares under crop production and has one of the lowest numbers of annual crop growing households in Tanzania. Almost all smallholder households grow crops only and very few of them have livestock. The land area per crop growing household is 1.8 ha and it has a high percent of allocated land that is utilized. The region has a relatively high percent of permanent crops, some of which are in monocrop stands and the remainder in mixed annual/permanent crop. Lindi only has a long rainy season.

Cereal production is relatively unimportant in Lindi and it has one of the lowest planted areas and yields of maize in the country. Small quantities of rice is produced, however it has the sixth largest planted area of sorghum. Lindi also has a moderate production of cassava and its low planted area per household suggests that most households grow small amounts. Beans are not grown in the region and only small amounts of groundnuts and vegetables are grown. Traditional annual cash crops are also not grown.

Lindi has the third largest planted area of cashew nut, coconut and pigeon peas in the country and it has a moderate area under oranges compared to other regions.

Lindi has virtually no planted area under irrigation, however there may have been a small increase in the number of households with irrigation over the period of 10 years.

A relatively high percent of land clearing is done by burning and all cultivation by smallholders in the region is done by hand. No fertilizer or pesticides are applied. Storage of maize is practically zero. Lindi has the highest percent of storage in locally made traditional cribs. Compared to the other regions of Tanzania, the percent of smallholders selling crops in Lindi is average. Most processing of crops is done by hand and almost all the processed products are for home consumption.

Lindi has the lowest contact with extension services in the country. It also has the lowest number of smallholder planted trees and very little erosion control/water harvesting facilities.

3.3.17 Kigoma

Kigoma has a land area of 265,000 hectares under crop production and it has an average number of crop growing households compared to other regions with the majority being crop only growing households. The land area under crop production per crop growing household is 1.3 ha and it has a low rate of utilization compared to the total land available to smallholders. The number of crop growing households per square kilometer is low to moderate. The region has a moderate area planted with permanent crops. It has two rainy seasons with the same planted area in each.

Kigoma is one of the least important regions for cereal production even though the yield is higher than many other regions with larger planted areas. Very small areas of paddy and sorghum are grown. The most important annual crop in Kigoma is beans and it has one of the highest productions. The region also has the fourth largest planted area of cassava in Tanzania. Small to moderate quantities of groundnuts are also grown. The production of vegetables and cash crops is relatively unimportant compared to other regions.

The major permanent crop in Kigoma is oil palm and it has 60 percent of the total planted area of the crop in Tanzania. It also has the fourth largest planted areas of bananas and oranges.

In relative terms, Kigoma has a moderate planted area with irrigation compared to other regions and it appears that there has been a large increase in the number of households with irrigation over a period of 10 years. Most of the irrigation water is obtained from rivers and the method of obtaining water is equally split between buckets/watering cans and gravity. Field application of irrigation water is mainly by bucket/watering cans and this is closely followed by flood.

All land preparation is by hand and only a small proportion of the planted area has farm yard manure. Very little pesticides are used. Storage is normally in sacks or open drum. The region has one of the highest percent of households selling crops. Most processing was done by neighbours machine, however the region has the highest percent of processing done by traders. A large number of the households in Kigoma sell their processed crop, mostly in the local market or trade store. The percentage of smallholder households receiving extension services is one of the highest in the country.

Moderate numbers of eucalyptus is planted in the region and most of the erosion control facilities are bunds.

3.3.18 Pwani

Pwani has a land area of 250,000 hectares under crop production and it has a small number of crop growing households and very few with livestock. It has a land area per household with crops of 1,8 ha and the percent land utilization is relatively high, however the number of crop growing households per square kilometre is low. The region has two rainy seasons with the long rainy season being more important.

Cereal production in Pwani is not important and it has one of the smallest planted areas of maize in the country, however paddy production may be relatively important. Sorghum is grown in small quantities. Cassava is moderately important. Beans or groundnuts are not produced in the region and vegetable production is small.

Pwani has the fourth largest planted area of cashew nuts and it has the largest planted areas of coconuts. It has the second largest area planted with oranges in the country.

There is a very small planted area with irrigation in the region. All cultivation is done by hand and virtually no fertilizer or pesticides are used. Storage is predominantly in locality made traditional cribs. Pwani has little available crop produce to sell and the percent of households selling is also low. The region has one of the lowest percent of households processing crops, however it has the highest percent of households processing crops by hand. Pwani is also among the regions selling the least processed produce. Smallholders in Pwani receive moderate extension advice in terms of percent of households receiving advice.

Very few trees are planted by smallholder households in Pwani and it has one of the smallest numbers of households with erosion control/water harvesting facilities.

3.3.19 Kilimanjaro

Kilimanjaro has a land area of 230,000 hectares under crop production and has a relatively high number of crop growing households compared to other regions. Most of the crop growing households have livestock. The number of crop growing household per square kilometer is the second highest in the country. The region has a land area per crop growing household of 1.0 ha and almost all available land is utilized. The region has short and long rainy seasons with the long rainy season being slightly more important. Kilimanjaro has a relatively high percent of permanent crops, some of which are in mono-crop stands and the remainder in mixed annual/permanent crop.

Cereal production in Kilimanjaro is not important and it has one of the smallest planted areas of maize. Paddy, sorghum, cassava and groundnuts are almost absent in the region. There is moderate to low cultivation of beans and vegetables. The region has the second largest planted area of bananas, third for coffee and mangoes. Small amounts of oranges and sugar canes are also grown in the region.

Kilimanjaro has the fourth largest planted area with irrigation in Tanzania and it has the second highest percent of total planted area under irrigation. The region has faced the greatest decline in the number of households with irrigation in 10 years (around 30%). Canals are the most common source of irrigation water and the region has the highest percent of households using canals. Rivers are also used. Practically all irrigation water is obtained by gravity and very few households use buckets/watering cans. Similarly, flood irrigation in the region is the highest in the country and almost all field application of irrigation water is by flood, with very few households applying irrigation water by buckets/watering cans.

Most cultivation is done by hand with very few households using oxen. However, it is one of the six regions in the country that has some cultivation by tractor. Kilimanjaro has one of the highest percent of the total planted area with fertilizer application and slightly more farm yard manure than inorganic fertilizer is applied. It has the second highest percentage of total planted area with insecticide application and the fourth highest for fungicides. The region has the highest percent of households using air tight drums for storage and it is the most common method in the region, however this is closely followed by sacks/open drums. Very little storage is done in locally made traditional structures.

Although Kilimanjaro has only a moderate number of households selling crops, it has the highest percent of households processing crops. Though small, the region has the second largest number households processing crops on farm by machine, however most processing in the region is done by neighbours machine. It has the second highest number of households selling processed crop and this is mostly to farmers associations (higher than any other region) and the marketing cooperatives (also the highest in the country). Kilimanjaro has one of the highest number and percent of smallholder households receiving extension advice in the country.

Kilimanjaro region has a moderate number of planted trees by smallholders in the country with gravellis being the dominant species. Some eucalyptus and casurina are also grown. It has the largest number of households with erosion control/water harvesting bunds in Tanzania with terraces and erosion control bunds being the most common.

3.3.20 Arusha

Arusha has a land area of 222,000 hectares under crop production and has a relatively small number of crop growing households compared to other regions and most of them have livestock. The number of crop growing household per square kilometer is low and it has a crop land area per household of 1.4 ha. Almost all land made available to smallholders is

utilized. The region has short and long rainy seasons, however the short rainy season has only a small planted area. In Arusha region, annual cropping is the most important, however it has also a small amount of perennial crops all planted as a mixture with annuals.

Arusha has one of the smallest planted areas of maize, paddy, cassava, sorghum and groundnuts in Tanzania. The region has a moderate planted area of beans. Arusha region is important for vegetables, with the largest planted area of onions and has the fifth largest planted area of cabbage with a moderate planted area of tomatoes.

Permanent crops are not important in Arusha, only small amounts of coffee and mangoes are grown. Although small, it has the third largest planted area with irrigation in Tanzania and it has the highest percent of total planted area under irrigation. The number of households with irrigation has remained more or less constant over a period of 10 years. Rivers and canals are the most common source of irrigation water and almost all households use gravity for obtaining irrigation water. Practically all field application of irrigation water is by flood.

The region has the largest percent of planted area cultivated by oxen and some tractors are used with very small areas cultivated by hand. Compared to most other regions, Arusha has a high percent of fertilizer use and is mostly farm yard manure, however there is also a small amount of inorganic fertilizer used. The region has one of the highest percent of planted area with pesticide application. Storage is mainly in sacks/open drums and a small amount of storage in locally made traditional structures and in air tight drums. The region has the highest percent of households with improved locally made storage cribs.

Arusha has one of the lowest numbers of households selling crops. The region has one of the smallest numbers of households practicing crop processing in Tanzania and is predominantly done by neighbour machines. Practically all processed products are used by the household. The region has low to moderate extension contact.

Small number of gravellis are planted by smallholder households and the region has the third highest percent of households with erosion control/water harvesting facilities in the country and most of these are erosion control and water harvesting bunds. It also has the highest number of tree belts in the country.

3.3.21 Dar es Salaam

Dar es Salaam has a land area of 32,000 hectares under crop production and has the smallest number of crop growing households in the country and most of them do not have livestock. The number of crop growing household per square kilometer is one of the highest and it has a crop land area per household of 1.5 ha. Almost all land made available to smallholders is utilized. The region has short and long rainy seasons, however the long rainy season is more important. In Dar es Salaam region, both annual and permanent crops are important.

Dar es Salaam is not important for cereal production and has one of the smallest planted areas of maize, paddy and cassava in the country. Sorghum, beans and groundnuts are virtually not grown in the region. Dar es Salaam region is not important for vegetables, although some small amount of tomatoes is grown. With the exception of coconuts and oranges, permanent crops are not important in Dar es Salaam.

Dar es Salaam has the smallest irrigation in Tanzania and time series data shows that the number of households with irrigation has not changed for a period of 10 years. Further details on irrigation in Dar es Salaam are inappropriate due to

small numbers. The region has the lowest percent of households processing crops. Although most of the processing is mostly on farm by hand, the region has the highest percent of households processing crops on farm by machine. Although the region has the smallest number of households receiving extension services, in terms of percentages it has the highest percent of households receiving extension services in the country. Tree planting is almost absent in Dar es Salaam.

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2.3 TYPE OF AGRICULTURE HOUSEHOLD: Rank of Importance of different Livelihood activities by Region during 2002/03 Agriculture Year

Region	Livelihood activity						
	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Dodoma	1	7	5	6	3	4	2
Arusha	1	7	4	5	2	6	3
Kilimanjaro	1	6	2	5	3	7	4
Tanga	1	8	3	7	4	5	2
Morogoro	1	7	4	6	3	5	2
Pwani	1	5	2	7	4	6	3
Dar es Salaam	1	5	3	7	4	6	2
Lindi	1	6	3	7	4	5	2
Mtwara	1	5	2	7	4	6	3
Ruvuma	1	5	2	6	4	7	3
Iringa	1	7	4	6	3	5	2
Mbeya	1	7	3	6	4	5	2
Singida	1	7	6	5	3	4	2
Tabora	1	7	4	6	3	5	2
Rufawa	1	7	4	6	3	5	2
Kigoma	1	5	2	7	4	6	3
Shinyanga	1	7	4	5	2	6	3
Kagera	1	5	2	6	3	7	4
Mwanza	1	5	3	7	4	6	2
Mara	1	5	2	7	4	6	3
Manyara	1	7	6	4	2	5	3
Total	1	7	3	6	4	5	2

LAND SUFFICIENCY

LAND USE

Regions	Land Use Areas											Total Area (ha)	
	Area under Temporary Mono Crops	Area under Temporary Mixed Crops	Area under Permanent Mono Crops	Area under Permanent Mixed Crops	Area under Permanent Annual Mts	Area under Pasture	Area under Fallow	Area under Natural Bush	Area under Natural Trees	Area under Planted Trees	Area Rented to Others		Area Unusable
Dodoma	487,443	218,871	3,342	11,498	13,161	7,871	39,437	8,822	4,431	5,533	10,443	46,104	865,264
Arusha	45,312	112,730	2,567	9,556	5,398	42,336	12,348	1,194	3,281	1,059	3,028	16,931	257,827
Kilimanjaro	49,296	88,838	7,106	52,249	28,868	18,086	27,873	357	9,858	4,897	2,868	8,464	278,325
Tanga	187,875	78,350	33,108	40,398	81,938	1,852	43,927	2,771	3,859	4,236	9,597	57,353	524,461
Morogoro	328,894	54,759	27,285	11,366	18,487	2,856	12,206	4,290	2,891	11,497	8,558	83,452	587,782
Pwani	59,489	33,898	41,042	43,439	66,332	5,932	14,787	5,319	722	1,818	7,702	33,871	312,868
Dar es Salaam	5,417	2,716	2,474	8,160	13,408	1,059	1,391	123	330	392	533	2,550	38,551
Lindi	36,448	96,833	46,617	14,214	79,704	79	18,096	3,283	67	1,783	7,892	36,754	338,484
Mtwara	63,873	138,887	50,477	11,853	88,209	1,027	11,536	8,356	403	2,286	4,543	34,158	478,188
Ruvuma	204,099	45,471	120,484	39,451	66,045	9,228	71,887	79,522	10,991	10,766	24,297	115,091	790,230
Iringa	253,966	144,871	8,711	6,890	15,714	13,023	29,230	25,366	40,484	12,813	28,316	111,484	681,830
Mbeya	382,807	71,330	40,812	40,478	18,111	8,372	32,723	11,628	13,078	8,818	9,854	38,518	672,237
Singida	273,871	48,982	2,605	3,458	8,782	18,756	37,800	14,301	1,209	5,944	11,246	87,134	483,150
Tabora	336,318	182,793	18,178	10,136	25,817	33,264	82,078	83,072	3,237	10,532	33,783	122,877	888,228
Rubwa	228,718	78,412	4,897	8,164	12,823	8,441	58,734	17,243	8,038	10,572	12,736	134,711	574,281
Kigoma	82,089	58,608	60,037	9,895	80,873	688	24,996	648	2,744	2,078	1,738	80,144	373,578
Schynge	753,816	230,347	8,046	11,896	42,888	121,381	166,287	94,118	3,454	21,284	28,428	108,572	1,488,142
Kagera	67,505	93,256	30,980	40,512	182,555	14,831	38,150	7,718	11,883	5,213	13,778	51,048	587,228
Mwanza	392,823	140,721	98,371	11,071	129,262	18,382	7,068	5,720	14,218	15,846	19,238	139,478	864,583
Mara	157,427	34,874	86,423	8,373	27,813	12,382	20,348	4,720	7,958	7,838	11,987	109,828	487,543
Mwanza	118,503	196,314	387	1,588	4,636	30,547	13,818	3,762	2,977	7,473	7,482	28,918	387,420
Mtandar	4,498,571	2,103,942	100,173	390,342	887,757	368,881	880,888	288,427	144,180	152,892	287,842	1,383,848	11,888,132
%	37.1	17.7	5.9	3.3	8.5	3.1	5.7	2.5	1.2	1.3	2.2	11.7	100.0
Zanzibar	31,028	5,888	32,312	26,348	10,940	55	1,802	48	1,054	322	561	2,282	111,808
National	4,438,177	2,100,810	733,095	418,881	987,797	369,040	882,758	298,475	145,273	153,224	288,503	1,398,231	11,997,070

**TOTAL ANNUAL CROP & VEGETABLE PRODUCTION –
LONG & SHORT RAINY SEASON**

7.0.8 TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Area Planted with Annual Crops (ha) by Irrigation Use and Region - 2002/03 Agriculture Year- LONG and SHORT Rainy Season

Region	Irrigation Use				TOTAL Number of crop growing Households	TOTAL Planted Area (ha)	% of area planted under irrigation in long rainy season
	Number of Households using irrigation	Planted Area (ha) with irrigation	Number of Households NOT using irrigation	Planted Area (ha) with no irrigation			
Dodoma	1,550	2,857	321,562	646,595	323,112	659,024	0.4
Arusha	26,946	21,096	109,532	146,460	138,479	169,976	12.4
Kilimanjaro	36,410	20,226	178,777	146,121	214,187	173,401	11.7
Tanga	13,556	11,350	249,973	388,794	283,381	428,535	2.6
Morogoro	18,481	12,840	240,765	381,328	259,246	414,183	3.1
Pwani	3,815	4,274	135,629	132,465	139,444	177,674	2.4
Dar es Salaam	1,480	1,103	17,804	12,299	19,264	21,121	5.2
Lindi	2,312	1,902	150,703	192,201	153,015	195,375	1.0
Mwera	2,304	2,140	226,898	252,499	229,202	256,405	0.8
Ruvuma	3,042	10,782	187,101	262,160	191,043	358,272	3.0
Idaga	27,629	23,617	250,887	356,689	278,717	405,960	5.8
Mbeya	32,133	30,648	338,516	413,017	371,650	459,226	6.7
Singida	3,183	3,443	178,217	315,371	179,400	321,434	1.1
Tabora	5,438	9,782	230,183	496,322	235,621	532,615	1.8
Rukwa	6,581	6,405	185,284	288,249	171,845	303,394	2.1
Kigoma	11,610	9,021	183,085	181,906	194,895	264,974	3.4
Shinyanga	4,852	6,358	370,695	949,765	375,010	960,250	0.7
Kagera	9,088	5,920	340,534	314,837	349,600	360,521	1.6
Mwanza	13,366	15,380	325,562	526,749	338,929	679,107	2.3
Mara	6,731	8,655	179,060	214,951	185,721	333,637	2.6
Manyara	6,088	4,255	144,182	258,524	150,278	265,260	1.6
Mainland		211,872		6,877,404	4,761,835	7,740,344	2.7
%		2.7		69	100	100	
Zanzibar		2,181		42,093	96,221	78,278	
National		214,054		6,919,497	4,858,056	7,818,621	

7.0.9 TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Area Planted with Annual Crops (ha) by Herbicide Use and Region - 2002/03 Agriculture Year- LONG and SHORT Rainy Season

Regions	Herbicide Use				TOTAL Number of crop growing Households	TOTAL Planted Area (ha)	% of Planted area using Herbicide
	Number of Households using Herbicide Use	Planted Area (ha) Herbicide Use Used	Number of Households NOT using Herbicide Uses	Planted Area (ha) Herbicide Use not Used			
Dodoma	3,315	8,864	318,786	645,229	323,112	659,024	1.04
Arusha	6,282	7,188	132,187	162,616	138,479	169,976	4.23
Kilimanjaro	9,047	7,969	205,140	162,665	214,187	173,401	4.60
Tanga	3,235	3,342	260,146	396,689	283,381	428,535	0.76
Morogoro	24,337	37,843	234,909	360,760	259,246	414,183	9.14
Pwani	3,817	3,049	135,826	133,402	139,444	177,674	1.72
Dar es Salaam	344	153	18,920	13,166	19,264	21,121	0.72
Lindi	1,748	1,572	151,266	192,130	153,015	195,375	0.80
Mwera	1,013	2,645	228,189	252,072	229,202	256,405	1.03
Ruvuma	3,183	4,776	187,861	266,473	191,043	358,272	1.33
Idaga	7,281	10,785	271,435	390,796	278,717	405,960	2.66
Mbeya	24,905	26,305	346,655	427,699	371,650	459,226	5.73
Singida	1,423	2,893	177,977	316,728	179,400	321,434	0.90
Tabora	4,242	9,202	231,378	485,668	235,621	532,615	1.73
Rukwa	997	2,434	170,840	296,434	171,845	303,394	0.80
Kigoma	2,722	2,154	181,872	187,498	194,895	264,974	0.81
Shinyanga	6,625	15,464	368,385	943,256	375,010	960,250	1.61
Kagera	3,733	2,914	345,867	316,310	349,600	360,521	0.81
Mwanza	9,872	18,881	329,058	520,704	338,929	679,107	2.75
Mara	4,881	2,834	181,030	216,292	185,721	333,637	0.79
Manyara	3,280	7,598	146,888	257,405	150,278	265,260	2.80
Mainland		176,564		6,958,416	4,761,835	7,740,344	2.26
%		2.3		89.9	100.0	100.0	
Zanzibar	3351	2,050	82,870	74,925	96,221	78,278	
National		178,613		7,033,341	4,858,056	7,818,621	

Number of households is an over estimate due to the double counting of households growing crops in both long and short seasons. To compare previous surveys use Number of Long Season planters only.

7.0.10 TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Area Planted with Annual Crops (ha) by Fungicide Use and Region - 2002/03 Agriculture Year- LONG and SHORT Rainy Season

Regions	Fungicide Use						% of Planted area using Fungicide
	Number of Households using Fungicide	Planted Area (ha) Fungicide Used	Number of Households NOT using Fungicide	Planted Area (ha) Fungicide not Used	TOTAL Number of crop growing Households	Total Planted Area (ha)	
Dodoma	3,670	8,213	319,241	649,811	323,112	659,024	1.4
Arusha	9,312	8,906	129,167	160,070	138,479	169,976	5.8
Kilimanjaro	12,529	7,957	201,658	163,444	214,187	173,401	4.6
Tanga	6,713	7,282	256,666	421,253	283,381	428,535	1.7
Morogoro	7,763	8,759	251,483	405,424	259,248	414,183	2.1
Pwani	5,021	4,084	134,423	173,559	139,444	177,674	2.3
Dar es Salaam	1,677	1,009	17,587	19,512	19,284	21,121	7.8
Lindi	2,689	2,500	150,346	192,810	153,015	195,375	1.3
Mtwara	3,672	5,200	225,330	251,204	229,202	259,405	2.0
Ruvuma	4,926	7,673	186,117	350,598	191,043	358,272	2.1
Iringa	6,434	22,363	270,283	383,997	278,717	405,960	5.5
Mbeya	6,153	12,013	363,486	447,214	371,650	459,226	2.6
Singida	1,993	3,487	177,407	317,948	179,400	321,434	1.1
Tabora	9,045	20,553	226,576	512,082	235,621	532,615	3.9
Rukwa	2,569	3,782	169,276	299,612	171,845	303,394	1.2
Kigoma	5,672	3,319	189,023	261,655	194,896	264,974	1.3
Shinyanga	11,703	27,060	363,307	933,189	375,010	960,250	2.8
Kagera	6,495	3,687	343,104	359,834	349,800	360,521	1.0
Mwanza	10,684	18,537	328,245	660,570	338,929	679,107	2.7
Mara	6,665	4,705	179,036	328,933	185,721	333,637	1.4
Manyara	3,583	7,807	146,695	257,453	150,278	265,260	2.9
Mainland		191,582		7,548,782	4,781,835	7,740,344	2.5
%		2.5		97.5	100.0	100.0	
Zanzibar	258	64	101,066	78,212	96,221	78,276	
National		191,826		7,626,994	4,858,056	7,818,621	

Number of households is an over estimate due to the double counting of households growing crops in both long and short seasons. To compare previous surveys use Number of Long Season planters only.

7.0.11 TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Area Planted with Annual Crops (ha) by Insecticide Use and Region - 2002/03 Agriculture Year- LONG and SHORT Rainy Season

Regions	Insecticide Use						% of Planted area using insecticide
	Number of Households using Insecticide	Planted Area (ha) Insecticide Used	Number of Households Not using Insecticide	Planted Area (ha) Insecticide not Used	TOTAL Number of crop growing Households	Total Planted Area (ha)	
Dodoma	3,315	24,481	319,796	634,533	323,112	659,024	4
Arusha	13,698	26,502	124,781	143,474	138,479	169,976	16
Kilimanjaro	39,174	33,676	175,013	139,725	214,187	173,401	19
Tanga	6,530	14,131	256,997	414,404	283,381	428,535	3
Morogoro	21,305	22,552	237,941	391,631	259,248	414,183	5
Pwani	5,146	5,560	134,296	172,113	139,444	177,674	3
Dar es Salaam	1,413	2,025	17,850	19,098	19,284	21,121	10
Lindi	1,748	3,495	151,266	191,880	153,015	195,375	2
Mtwara	1,013	6,207	228,189	250,199	229,202	259,405	2
Ruvuma	3,183	25,353	187,861	332,919	191,043	358,272	7
Iringa	7,281	175,229	271,435	230,731	278,717	405,960	43
Mbeya	27,530	46,308	344,119	409,918	371,650	459,226	11
Singida	1,423	13,783	177,977	307,672	179,400	321,434	4
Tabora	4,242	84,807	231,376	447,608	235,621	532,615	16
Rukwa	1,031	27,676	170,614	275,716	171,845	303,394	9
Kigoma	8,914	8,740	185,781	286,234	194,896	264,974	3
Shinyanga	6,625	145,309	368,922	814,940	375,010	960,250	15
Kagera	13,962	15,209	335,636	345,312	349,800	360,521	4
Mwanza	33,228	83,759	306,700	593,348	338,929	679,107	12
Mara	13,613	20,760	172,176	312,887	185,721	333,637	6
Manyara	3,603	20,025	146,474	245,234	150,278	265,260	6
Total		808,589		6,931,776	4,781,835	7,740,344	10.4
%		10.4		89.6	100.0	100.0	
Zanzibar	2,609	1,642	93,412	76,634	96,221	78,276	2
National		810,211		7,008,410	4,858,056	7,818,621	

7.0.12 TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Area Planted with Annual Crops (ha) by Improved Seed Use and Region - 2002/03 Agriculture Year- LONG and SHORT Rainy Season

Regions	Improved Seed Use						% of Planted area using Improved seed	Planted area with no seed use record
	Number of Households using Improved Seed	Planted Area (ha) Improved Seed Used	Number of Households NOT using Improved Seeds	Planted Area (ha) Improved Seed not Used	Total Number of Households Planting in TOTAL	Total Planted Area (ha) in TOTAL		
Dodoma	47,828	67,930	275,573	566,598	323,502	652,093	6.6	6,932
Arusha	80,131	36,611	114,628	126,681	174,757	169,002	3.5	74
Kilimanjaro	163,991	74,505	115,008	86,705	278,999	171,295	7.2	2,108
Tanga	64,107	40,075	365,996	348,070	430,102	400,310	3.9	28,224
Morogoro	61,834	46,508	294,142	343,338	355,976	398,661	4.5	15,523
Pwani	31,358	15,403	135,280	114,829	166,618	135,620	1.5	42,053
Dar es Salaam	15,273	8,784	8,644	5,630	22,117	13,320	0.7	7,801
Lindi	16,433	12,322	134,722	179,044	151,154	195,008	1.2	369
Mtwara	10,898	5,949	215,917	247,004	226,616	254,837	0.8	1,588
Ruvuma	38,120	22,958	149,101	242,204	187,221	271,278	2.2	86,993
Iringa	71,305	60,790	206,881	315,704	277,966	402,034	5.9	3,926
Mbeya	73,596	48,863	330,676	393,797	404,471	454,069	4.7	5,157
Singida	41,648	38,680	139,043	258,636	160,691	318,977	3.8	1,457
Tabora	56,842	68,376	178,615	433,887	235,466	511,655	6.6	20,660
Rufawa	19,885	26,354	151,465	270,803	171,349	300,820	2.5	2,574
Kigoma	24,618	7,349	278,098	178,315	302,716	189,637	0.7	75,337
Shinyanga	145,836	203,470	230,424	727,768	378,261	958,806	19.7	1,443
Kagera	78,253	33,705	401,072	272,390	479,325	321,241	3.3	39,280
Mwanza	185,199	143,062	278,574	369,874	441,773	539,539	13.8	139,668
Mara	74,518	45,246	177,788	167,603	252,305	218,479	4.4	115,158
Mtanyara	26,727	28,643	128,534	223,232	155,261	263,260	2.8	-
Mainland		1,034,364		5,873,112		7,143,840	100.0	586,504
%		14.5		82.2		100.0		
Zanzibar		14,047		30,220		44,267		34,002
National		1,048,611		5,903,332		7,188,107		630,506

Note: the planted area with no improved Seed is for cassava that was recorded as a permanent crop and later was switched to an annual crop. Method of improved Seed use was not recorded for permanent crops.

7.0.13 TOTAL ANNUAL CROP & VEGETABLE PRODUCTION: Planted Area and Number of Crop Growing Households by Insecticide Use and Crop - 2002/03 Agriculture Year - LONG & SHORT RAINY SEASON

Crop	Insecticide Use					
	Households Using Insecticide		Households Not Using Insecticide		Total	
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
CEREALS	480,675	428,584	6,065,762	4,346,380	6,548,437	4,772,964
Maize	422,911	383,490	4,096,469	3,079,044	4,621,380	3,482,634
Paddy	29,066	24,287	882,007	596,570	911,093	820,837
Sorghum	15,563	9,920	686,240	439,708	701,803	449,827
Bulrush Millet	4,750	4,204	157,066	120,008	181,805	124,211
Finger Millet	4,322	1,849	178,834	81,635	183,158	83,485
Wheat	3,669	2,611	61,429	28,613	65,298	31,224
Barley	174	243	1,726	803	1,903	1,046
ROOTS & TUBERS	42,951	23,930	1,208,682	412,428	1,251,633	433,823
Cassava	7,829	8,261	455,163	230,604	482,791	235,530
Sweet Potatoes	9,439	2,234	567,670	133,234	577,110	135,468
Irish Potatoes	25,458	13,302	125,767	37,988	151,225	51,250
Yams	381	128	19,265	3,526	19,646	3,653
Cocoyam	44	4	40,817	7,076	40,860	7,082
PULSES	170,812	73,940	2,463,433	864,779	2,634,245	938,719
Mung Beans	288	78	2,043	901	2,312	979
Beans	139,627	57,236	1,953,131	688,677	2,092,058	745,913
Cowpeas	17,763	4,650	262,626	69,469	290,580	74,119
Green Gram	3,668	901	62,261	17,882	65,029	16,762
Pigeon Peas	-	-	1,421	406	1,421	406
Chick Peas	3,946	9,032	39,662	53,995	43,608	63,027
Bambara nuts	1,742	424	109,291	24,348	111,033	24,772
Field Peas	3,867	1,620	32,796	9,100	36,695	10,720
OIL SEEDS & OIL NUTS	30,813	15,839	1,193,296	518,166	1,224,021	534,005
Sunflower	6,877	3,135	196,946	112,447	205,823	115,583
Simsim	5,816	5,234	133,312	62,780	139,129	68,014
Groundnuts	17,802	7,217	855,671	341,122	873,472	348,339
Soya Beans	270	219	4,312	1,601	4,582	1,819
Castor Seed	248	35	767	215	1,015	251
FRUITS & VEGETABLES	178,747	41,246	159,747	28,239	338,494	88,486
Okra	1,363	389	2,740	774	4,103	1,163
Redish	318	271	653	1,158	971	1,428
Tumeric	-	-	85	19	85	19
Bitter Aubergine	1,060	130	1,801	419	2,881	549
Garlic	-	-	132	27	132	27
Onions	19,106	6,566	20,812	4,229	39,920	10,798
Ginger	178	29	2,408	739	2,584	768
Cabbage	34,345	6,726	15,190	1,949	49,534	8,675
Tomatoes	86,787	20,111	47,676	9,432	134,663	29,543
Spinnaoh	8,110	1,049	8,957	689	17,066	1,938
Carrot	2,245	739	2,404	667	4,049	1,420
Chillies	6,580	1,529	4,597	773	11,158	2,302
Amaranths	8,483	1,113	24,276	2,857	32,761	3,970
Pumpkins	755	103	20,900	2,746	21,655	2,850
Cucumber	3,510	626	2,008	290	5,518	875
Egg Plant	2,225	331	3,192	607	5,417	1,138
Water Melon	3,512	1,522	1,215	280	4,728	1,802
Cauliflower	181	12	480	204	681	215
CASH CROPS	188,927	227,028	176,444	168,816	364,471	395,845
Seaweed	-	-	655	356	655	356
Cotton	147,667	186,494	140,700	150,564	288,368	337,058
Tobacco	40,282	40,525	32,318	18,881	72,598	57,408
Pyrethrum	-	-	2,558	992	2,558	992
Jute	79	10	218	23	206	32

808,560

7.0.14 TOTAL ANNUAL CROP & VEGETABLE PRODUCTION: Planted Area and Number of Crop Growing Households by Fungicide Use and Crop - 2002/03 Agriculture Year - LONG & SHORT RAINY SEASON

Crop	Fungicide Use					
	Households Using Fungicide		Households Not Using Fungicide		Total	
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
CEREALS	104,677	89,441	6,441,860	4,883,522	6,546,437	4,772,964
Maize	73,237	87,749	4,448,143	3,394,785	4,821,390	3,462,534
Paddy	16,819	11,100	896,474	609,737	911,093	820,837
Sorghum	9,079	5,640	892,724	443,987	701,803	449,827
Burush Millet	2,307	1,745	199,498	122,465	181,805	124,211
Finger Millet	1,903	1,018	181,253	82,467	183,159	83,495
Wheat	2,302	1,766	62,096	29,458	65,298	31,224
Barley	132	423	1,771	623	1,903	1,046
ROOTS & TUBERS	42,479	23,191	1,209,154	412,560	1,251,633	433,023
Cassava	5,737	6,098	467,064	232,159	468,791	235,530
Sweet Potatoes	6,040	1,552	571,070	133,916	577,110	135,488
Irish Potatoes	30,364	15,506	120,861	35,783	151,225	51,290
Yams	132	13	19,515	3,640	19,646	3,653
Cocoyam	206	21	40,655	7,061	40,860	7,082
PULSES	42,046	17,491	2,592,199	921,228	2,634,245	938,719
Mung Beans	12	2	2,300	977	2,312	979
Beans	33,338	13,512	2,059,320	732,401	2,092,658	745,813
Cowpeas	4,285	1,030	276,324	73,088	280,589	74,119
Green Gram	909	419	65,020	18,363	65,829	18,782
Pigeon Peas	-	-	1,421	406	1,421	406
Chick Peas	487	1,580	43,121	61,447	43,608	63,027
Bambara nuts	1,016	267	110,016	24,505	111,033	24,772
Field Peas	2,018	681	34,677	10,038	36,695	10,720
OIL SEEDS & OIL NUTS	13,669	4,827	1,210,352	529,078	1,224,021	534,905
Sunflower	1,398	962	204,425	115,021	208,823	115,583
Simsim	1,575	807	137,554	67,207	139,129	88,014
Groundnuts	10,361	3,515	883,121	344,824	673,472	348,339
Soya Beans	-	-	4,582	1,819	4,582	1,819
Caster Seed	346	43	669	208	1,015	291
FRUITS & VEGETABLES	114,674	27,571	223,820	41,915	338,494	69,486
Okra	573	224	3,530	940	4,103	1,193
Radiash	149	261	822	1,168	971	1,429
Tumalo	-	-	95	19	95	19
Bitter Aubergine	475	54	2,386	485	2,661	549
Garlic	-	-	132	27	132	27
Onions	8,666	2,673	31,254	8,122	39,920	10,796
Ginger	176	29	2,408	739	2,584	768
Cabbage	10,921	1,963	38,613	6,712	49,534	8,675
Tomatoes	75,843	18,197	58,820	11,347	134,663	29,543
Spinnsch	2,401	343	14,885	1,595	17,098	1,938
Carrot	2,058	640	2,591	788	4,649	1,426
Chilies	4,099	898	7,057	1,404	11,159	2,302
Amarantha	2,141	264	30,620	3,706	32,781	3,870
Pumpkins	438	87	21,219	2,783	21,655	2,850
Cucumber	2,831	486	2,867	389	5,518	875
Egg Plant	1,240	213	4,177	825	5,417	1,138
Water Melon	2,865	1,248	1,863	554	4,728	1,802
Cauliflower	-	-	681	215	681	215
CASH CROPS	26,768	28,940	337,703	366,805	364,471	395,845
Seafood	-	-	858	356	655	356
Cotton	11,064	14,396	277,302	322,662	288,366	337,058
Tobacco	16,704	14,544	58,894	42,862	72,599	67,408
Pyrethrum	-	-	2,558	992	2,558	992
Jute	-	-	296	32	296	32

181,562

7.0.15 TOTAL ANNUAL CROP & VEGETABLE PRODUCTION: Planted Area and Number of Crop Growing Households by Herbicide Use and Crop - 2002/03 Agriculture Year - LONG & SHORT RAINY SEASON

Crop	Herbicide Use					
	Households Using Herbicide		Households Not Using Herbicide		Total	
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
CEREALS	138,468	133,779	6,467,989	4,839,184	6,546,437	4,772,964
Maize	73,041	68,174	4,448,339	3,394,359	4,521,380	3,462,534
Paddy	50,451	56,055	860,642	964,782	811,063	620,837
Sorghum	7,770	4,403	694,033	445,225	701,803	449,627
Suinash Millet	2,047	1,430	199,758	122,781	181,805	124,211
Finger Millet	1,616	781	181,540	82,704	183,156	63,485
Wheat	3,341	2,465	81,958	28,740	66,296	31,224
Barley	203	451	1,700	595	1,803	1,046
ROOTS & TUBERS	14,988	8,030	1,236,646	427,189	1,261,833	433,023
Cassava	2,558	4,104	480,233	233,823	462,791	235,530
Sweet Potatoes	7,689	1,914	599,421	133,554	577,110	135,468
Irish Potatoes	4,066	1,946	147,159	49,344	151,225	51,290
Yams	451	32	19,195	3,821	19,846	3,853
Cooyam	224	34	40,636	7,048	40,660	7,062
PULSEB	31,820	13,752	2,603,225	924,967	2,834,245	938,719
Mung Beans	-	-	2,312	979	2,312	979
Beans	25,045	10,161	2,067,613	735,752	2,062,658	745,913
Cowpeas	3,050	991	277,538	73,127	280,589	74,119
Green Gram	820	416	55,109	18,366	65,929	18,782
Pigeon Peas	-	-	1,421	405	1,421	406
Chick Peas	738	1,950	42,870	81,077	43,606	63,027
Bambara nuts	988	155	110,045	24,818	111,033	24,772
Field Peas	378	79	38,317	10,842	36,895	10,720
OIL SEEDS & OIL NUTS	12,883	5,672	1,211,657	528,332	1,224,821	534,905
Sunflower	2,642	1,463	203,181	114,119	205,823	115,583
Simsim	1,190	524	137,839	67,489	139,129	68,014
Groundnuts	9,132	3,685	864,340	344,854	873,472	348,339
Soye Beans	-	-	4,582	1,819	4,582	1,819
Castor Seed	-	-	1,015	251	1,015	251
FRUITS & VEGETABLES	17,271	4,922	321,223	64,564	338,484	69,486
Okra	147	27	3,956	1,138	4,103	1,163
Radish	-	-	971	1,429	971	1,429
Turmeric	-	-	95	19	95	19
Bitar Aubergine	-	-	2,801	549	2,801	549
Garlic	-	-	132	27	132	27
Onions	2,097	1,186	37,523	9,910	39,920	10,796
Ginger	-	-	2,584	798	2,584	768
Cabbage	2,097	450	47,437	8,225	49,534	8,675
Tomatoes	8,836	2,255	125,827	27,288	134,663	29,543
Spinnaeh	676	110	15,390	1,829	17,066	1,936
Carrot	894	367	3,755	1,059	4,649	1,426
Chilies	471	91	10,595	2,211	11,156	2,302
Amarantha	711	92	32,050	3,878	32,761	3,970
Pumpkins	-	-	21,655	2,850	21,655	2,850
Cucumber	591	115	4,927	751	5,518	875
Egg Plant	236	50	5,181	1,088	5,417	1,138
Water Melon	517	180	4,210	1,822	4,728	1,802
Cauliflower	-	-	681	215	681	215
CASH CROPS	10,408	10,407	354,883	385,438	384,471	385,845
Seaweed	-	-	655	358	655	358
Cotton	6,582	6,608	281,784	330,250	288,366	337,058
Tobacco	3,825	3,699	58,773	53,807	72,596	57,406
Pyrethrum	-	-	2,536	992	2,566	962
Jute	-	-	296	32	296	32

176,563

**ANNUAL CROP & VEGETABLE PRODUCTION –
SHORT RAINY SEASON**

7.1.2 ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area (hectare) by Means Used for Soil Preparation and Region during 2002/03 agriculture year - SHORT RAINY SEASON

Region	Soil Preparation							
	Mostly Tractor Ploughing		Mostly Oxen Ploughing		Mostly Hand Cultivation		Total	
	Number of Household	Planted Area (ha)	Number of Household	Planted Area (ha)	Number of Household	Planted Area (ha)	Number of Household	Planted Area (ha)
Dodoma	0		481	886	390	94	861	880
Arusha	3,809	3,052	24,885	18,783	19,327	8,387	48,021	28,071
Kilimanjaro	3,863	3,113	7,082	3,796	105,061	82,351	118,006	89,258
Tanga	1,544	1,355	6,107	4,878	185,850	154,467	198,502	160,820
Morogoro	8,088	9,788	8,271	14,583	117,328	103,242	131,888	127,804
Pwani	1,421	1,048	2,732	1,753	82,070	85,338	96,222	86,141
Dar es Salaam	100	92	313	232	7,046	3,154	7,464	3,507
Mtwara	0		0	81	288	421	288	481
Ruvuma	0		0		72	110	72	110
Iringa	0		0		123	25	123	25
Mbeya	207	232	2,971	1,858	87,808	39,748	90,788	41,840
Singida	120	12	690	1,404	622	876	1,333	2,292
Ruaha	0		233	1,048	0		233	1,048
Kigoma	229	307	3,045	3,707	180,480	141,128	183,768	145,143
Shinyanga	83	87	338	485	1,142	2,274	1,561	2,828
Kagera	1,362	788	5,837	7,536	315,286	234,688	322,485	242,812
Mwanza	1,797	2,847	79,865	180,835	240,696	284,388	322,248	438,177
Mara	1,335	732	69,527	75,903	58,846	43,862	127,507	120,287
Manyara	889	813	1,373	1,687	3,636	2,320	6,897	4,020
Mainland	24,833	24,884	211,817	318,718	1,388,478	1,118,533	1,823,208	1,457,855
%	2	2	13	22	85	77	100	100
Zanzibar		380		10,688		11,058		16,875
National		24,884		327,418		1,127,591		1,474,730

Total hh figures are indicative as a household may use more than one type of Land preparation method for different crops

7.1.3 ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area (hectare) by Fertilizer Use and Region during 2002/03 agriculture year - SHORT RAINY SEASON

Regions	Fertilizer Use								Total	
	Mostly Farm Yard Manure		Mostly Compost		Mostly Inorganic Fertilizer		No Fertilizer Applied		Number of Household planting in Vuli	Area Planted during Vuli
	Number of Household	Planted Area (ha)	Number of Household	Planted Area (ha)	Number of Household	Planted Area (ha)	Number of Household	Planted Area (ha)		
Dodoma	238	58	0		0		615	682	851	980
Arusha	17,538	8,083	448	226	7,873	5,528	22,162	13,833	48,021	28,871
Kilimanjaro	59,587	29,028	3,573	2,934	18,530	6,008	38,315	28,391	116,006	89,258
Tanga	22,959	20,089	8,686	4,537	4,005	2,363	162,852	123,811	198,502	160,820
Morogoro	4,418	6,054	4,138	2,780	4,271	5,890	118,838	113,088	131,888	127,804
Pwani	3,857	2,588	4,560	2,893	1,935	1,013	85,881	81,847	96,222	86,141
Dar es Salaam	1,841	770	502	307	448	245	4,873	2,184	7,464	3,507
Mtwara	0		0		0		288	481	288	481
Ruvuma	0		0		72	37	0	72	72	110
Iringa	0		0		0		123	25	123	25
Mbeya	19,350	12,607	3,680	1,871	10,042	7,307	27,515	18,858	90,788	41,840
Singida	572	1,233	0		0		761	1,069	1,333	2,292
Ruaha	0				0		233	1,048	233	1,048
Kigoma	25,829	21,830	8,899	8,740	3,806	2,505	144,229	115,065	183,768	145,143
Shinyanga	383	370	227	219	0	48	881	2,189	1,561	2,828
Kagera	33,278	21,686	17,861	9,511	1,487	1,433	288,848	210,262	322,485	242,812
Mwanza	79,483	98,075	4,838	5,286	2,863	5,867	234,983	328,147	322,248	438,177
Mara	25,350	26,985	2,444	2,516	1,522	871	88,183	98,003	127,507	120,287
Manyara	3,378	2,249	87	93	0	50	2,433	1,829	5,897	4,020
Mainland	305,847	245,581	58,145	38,896	54,984	42,708	1,211,072	1,130,870	1,823,208	1,457,855
%	19	17	3	3	3	3	75	78	100	100
Zanzibar	4,943	1,816	1,430	511	1,277	458	22,332	8,179	28,962	11,058
National	305,790	247,600	57,575	39,409	56,261	43,166	1,233,404	1,138,839	1,853,010	1,468,913

Total hh figures are indicative as a household may use more than one type of Land preparation method for different crops

7.1.4 ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area (hectare) by Irrigation Use and Region during 2002/03 agriculture year -SHORT RAINY SEASON

Region	Irrigation use						% of planted area (ha) under irrigation in short rainy season
	Number of Households using Irrigation	Planted Area (ha) with Irrigation	Number of Households NOT using Irrigation	Planted Area (ha) with no Irrigation	Total Number of Households Planting in VULI	Total Planted Area (ha) in VULI	
Dodoma	145	16	707	965	851	980	1.5
Arusha	13,475	9,187	34,548	19,484	48,021	28,671	32.0
Kilimanjaro	15,602	10,758	97,404	58,501	115,006	69,259	15.5
Tanga	5,306	5,088	188,196	162,732	196,502	180,820	5.0
Morogoro	8,258	6,835	123,408	120,789	131,888	127,804	5.4
Pwani	2,385	1,038	93,827	66,513	98,222	65,141	2.4
Dar es Salaam	604	372	6,850	3,185	7,464	3,507	10.9
Mtwara	0		288	481	288	481	0.0
Ruvuma	0	15	72	85	72	110	13.3
Iringa	0		123	25	123	25	0.0
Mbeya	5,406	2,229	55,380	39,411	60,786	41,643	7.8
Singida	600	197	733	2,085	1,333	2,292	8.0
Rukwa	0		233	1,049	233	1,049	0.0
Kigoma	5,081	5,268	177,662	138,875	183,763	145,143	3.8
Shinyanga	0	24	1,661	2,802	1,681	2,628	0.9
Kagera	4,078	3,778	318,407	238,833	322,485	242,812	1.8
Mwanza	7,150	10,137	315,098	428,943	322,346	438,177	2.3
Mara	3,287	2,412	124,220	117,884	127,507	120,297	2.0
Manyara	1,206	755	4,891	3,255	5,897	4,020	19.0
Mainland	79,694	62,710	1,643,434	1,395,145	1,623,028	1,467,858	4.3
%	5	4	95	96	100	100	
Zanzibar		1,359		5,701	29,982	11,058	
National		64,069		1,404,845	1,653,010	1,478,913	

7.1.5 ANNUAL CROP & VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area (hectare) by Improved Seed Use and Region during 2002/03 agriculture year - Short Rainy Season

Regions	Improved Seed						% of Planted area (ha) using Improved seed
	Number of Households using Improved Seed	Planted Area (ha) Improved Seed Used	Number of Households NOT using Improved Seeds	Planted Area (ha) Improved Seed not Used	Total Number of Households Planting in VULI	Total Planted Area (ha) in VULI	
Dodoma	145	15	707	965	851	980	1.5
Arusha	15,142	11,380	39,679	17,282	48,021	28,671	35.7
Kilimanjaro	61,210	30,726	54,798	38,533	115,006	69,259	44.4
Tanga	23,945	21,588	172,598	138,221	196,502	180,820	13.4
Morogoro	19,208	17,521	112,460	110,583	131,888	127,804	13.7
Pwani	16,542	10,051	78,580	58,060	98,222	65,141	14.5
Dar es Salaam	5,388	2,324	2,077	1,183	7,464	3,507	85.3
Mtwara	0		288	481	288	481	0.0
Ruvuma	0	15	72	85	72	110	13.3
Iringa	0		123	25	123	25	0.0
Mbeya	11,807	5,268	48,980	33,372	60,786	41,643	19.9
Singida	724	288	808	1,864	1,333	2,292	13.0
Rukwa	118	853	115	186	233	1,049	82.3
Kigoma	9,089	8,855	174,174	136,335	183,763	145,143	6.1
Shinyanga	888	1,864	894	1,862	1,681	2,628	58.9
Kagera	48,749	38,050	273,738	203,782	322,485	242,812	19.1
Mwanza	101,387	146,968	220,861	291,100	322,346	438,177	33.5
Mara	30,389	32,639	97,119	87,787	127,507	120,297	27.0
Manyara	1,594	878	4,353	3,045	5,897	4,020	24.3
Mainland	349,802	333,121	1,273,128	1,124,734	1,623,028	1,467,855	22.9
%	22	23	75	77	100	100	
Zanzibar		3,321		7,737	29,982	11,058.39	
National		358,442		1,132,472	1,653,010	1,478,913	

7.1.6 ANNUAL CROP & VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area (hectares) by Herbicide Use and Region during 2002/03 agriculture year - Short Rainy Season

Regions	Herbicide Use						% of Planted area using Herbicide
	Number of Households using Herbicide	Planted Area (ha) Using Herbicide	Number of Households NOT using Herbicide	Planted Area (ha) not using Herbicide	Total Number of Households Planting in VULI	Total Planted Area (ha) in VULI	
Dodoma	0	0	851	980	851	980	0.0
Arusha	1,951	2,005	46,070	26,823	48,021	28,671	7.0
Kilimanjaro	4,284	3,024	111,741	66,053	116,006	69,299	4.4
Tanga	1,811	1,427	194,690	159,385	196,502	160,820	0.9
Morogoro	7,664	10,839	124,002	116,857	131,666	127,604	8.5
Pwani	2,278	1,494	93,944	68,865	96,222	68,141	2.2
Dar es Salaam	84	22	7,381	3,479	7,464	3,507	0.6
Mtwara	0	0	286	290	286	481	0.0
Ruvuma	0	0	72	110	72	110	0.0
Iringa	0	0	123	25	123	25	0.0
Mbeya	719	285	60,067	41,513	60,786	41,640	0.6
Singida	120	24	1,213	2,267	1,333	2,292	1.1
Rukwa	0	0	233	1,049	233	1,049	0.0
Kigoma	1,665	1,675	182,098	143,441	183,763	145,143	1.2
Shinyanga	0	0	1,561	2,826	1,561	2,826	0.0
Kagera	3,014	2,485	319,471	240,272	322,485	242,812	1.0
Mwanza	7,015	15,117	315,233	422,577	322,248	438,177	3.5
Mara	2,418	1,203	125,091	118,941	127,507	120,297	1.0
Manyara	292	225	5,605	3,800	5,897	4,020	5.8
Mainland	33,293	39,806	1,589,735	1,417,552	1,623,028	1,457,855	2.7
%	2	3	96	97	100	100	
Zanzibar		21		11,037	29,982	11,058	
National		39,827		1,428,589	1,653,010	1,468,913	

7.1.7 ANNUAL CROP & VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area (hectares) by Insecticide Use by Region during 2002/03 agriculture year - SHORT RAINY SEASON

Regions	Insecticide Use						% of Planted area using Insecticide
	Number of Households using Insecticide	Planted Area (ha) Using Insecticide	Number of Households NOT using Insecticide	Planted Area (ha) not using Insecticide	Total Number of Households Planting in VULI	Total Planted Area (ha) in VULI	
Dodoma	0		851	980	851	980	0.0
Arusha	1,951	6,598	46,070	22,126	48,021	28,671	23.0
Kilimanjaro	4,284	18,295	111,741	50,948	116,006	69,299	26.4
Tanga	1,811	5,771	194,690	154,025	196,502	160,820	4.2
Morogoro	7,664	5,324	124,002	122,421	131,666	127,604	4.2
Pwani	2,278	3,079	93,944	65,270	96,222	68,141	4.5
Dar es Salaam	84	675	7,381	2,832	7,464	3,507	19.2
Mtwara	0		286	290	286	481	0.0
Ruvuma	0		72	110	72	110	0.0
Iringa	0		123	25	123	25	0.0
Mbeya	719	2,987	60,067	38,759	60,786	41,640	7.2
Singida	120	49	1,213	2,243	1,333	2,292	2.1
Rukwa	0	42	233	1,007	233	1,049	4.0
Kigoma	1,665	5,181	182,098	138,935	183,763	145,143	4.3
Shinyanga	0	114	1,561	2,712	1,561	2,826	4.0
Kagera	3,014	12,702	319,471	229,922	322,485	242,812	5.2
Mwanza	7,015	72,842	315,233	364,812	322,248	438,177	16.6
Mara	2,418	16,745	125,091	103,357	127,507	120,297	13.9
Manyara	292	581	5,605	3,444	5,897	4,020	14.4
Mainland	33,293	152,984	1,589,735	1,304,219	1,623,028	1,457,855	10.5
%	2	10	98	89	5867	100	
Zanzibar		628		10,431	29,982	11,058	
National		153,612		1,314,650	1,653,010	1,468,913	

7.1.8 ANNUAL CROP & VEGETABLE PRODUCTION: Number of Crop growing Households and Planted Area (hectare) by Fungicide Use and Region during the 2002/03 agriculture year - Short Rainy Season

Regions	Fungicide Use						% of Planted area using Fungicide
	Number of Households using Fungicide	Planted Area (ha) using Fungicide	Number of Households NDT using Fungicide	Planted Area (ha) not Using Fungicide	Total Number of Households Planting in VULI	Total Planted Area (ha) in VULI	
Dodoma	0	0	851	980	851	980	0.0
Arusha	4,021	2,690	44,000	26,049	48,021	28,739	9.4
Kilimanjaro	6,135	3,744	109,871	65,446	116,006	69,259	5.4
Tanga	3,798	4,012	192,708	156,799	196,502	160,820	2.5
Morogoro	2,680	3,610	128,988	123,828	131,668	127,604	2.8
Pwani	3,149	2,363	93,073	65,990	96,222	68,141	3.5
Dar es Salaam	628	455	6,837	3,052	7,464	3,507	13.0
Mtwara	92	149	194	141	286	481	30.8
Ruvuma	0	0	72	110	72	110	0.0
Iringa	0	0	123	25	123	25	0.0
Mbeya	742	1,239	60,044	40,396	60,786	41,640	3.0
Singida	120	24	1,213	2,267	1,333	2,292	1.1
Rukwa	0	0	233	1,049	233	1,049	0.0
Kigoma	2,656	1,975	181,107	143,125	183,763	145,143	1.4
Shinyanga	83	371	1,478	2,455	1,561	2,826	13.1
Kagera	3,258	2,510	319,227	240,215	322,485	242,812	1.0
Mwanza	6,719	14,932	315,529	422,971	322,248	438,177	3.4
Mara	3,655	2,231	123,853	118,131	127,507	120,297	1.8
Manyara	322	230	5,575	3,794	5,897	4,020	5.7
Mainland	38,058	40,536	1,584,972	1,416,822	1,623,028	1,457,856	2.8
%	2.3	2.8	97.7	97.2	100.0	100.0	
Zanzibar		12		11,047	29,982	11,058	
National		40,548		1,427,869	1,653,010	1,468,913	

7.1.10 ANNUAL CROP & VEGETABLE PRODUCTION: Planted Area (hectares) & Number of Crop Growing Households by Method of Soil Preparation during 2002/03 agriculture year - SHORT RAINY SEASON

Crop	Soil Preparation						Total	
	Mostly Tractor Ploughing		Mostly Oxen Ploughing		Mostly Hand Cultivation			
	Planted Area (ha)	Number of Household	Planted Area (ha)	Number of Household	Planted Area (ha)	Number of Household	Planted Area (ha)	Number of Household
CEREALS	18,950		218,693		605,134		892,786	
Maize	11,370	17,949	144,931	171,991	989,829	1,234,783	726,131	1,424,672
Paddy	7,019	8,507	42,178	47,931	52,989	90,970	102,184	154,459
Sorghum	491	1,447	28,971	54,694	24,547	64,737	52,009	120,676
Bulrush Millet	-	0	1,020	690	888	1,189	1,908	1,785
Finger Millet	79	261	3,509	7,243	6,776	21,182	10,564	28,665
Barley	-	0	65	56	105	319	190	274
ROOTS & TUBERS	333		6,347		71,856		78,537	
Cassava	29	171	905	2,328	10,770	34,439	11,702	36,935
Sweet Potatoes	212	1,047	4,934	20,098	42,806	212,606	47,765	233,151
Irish Potatoes	40	132	627	1,886	13,936	48,928	14,402	50,948
Yams	-	0	110	543	1,030	7,125	1,140	7,667
Cocoyam	53	235	172	654	3,713	20,344	3,938	21,433
PULSES	2,678		30,798		271,471		304,945	
Mung Beans	49	122	88	167	48	305	185	595
Beans	2,252	5,914	21,025	54,381	236,184	769,597	269,461	829,291
Cowpeas	308	1,544	2,454	6,601	27,238	167,450	30,900	118,969
Green Gram	46	196	5,296	17,079	4,989	23,151	11,331	40,430
Pigeon Peas	-	0	0	0	6	27	5	27
Chick Peas	-	0	521	819	106	424	629	1,243
Bambara nuts	21	69	213	1,111	1,093	9,230	1,328	10,429
Field Peas	-	0	262	296	1,604	7,502	2,006	7,796
OIL SEEDS & OIL NUTS	652		8,859		34,981		45,679	
Sunflower	337	1,037	571	1,532	3,067	14,712	4,004	17,982
Simam	290	128	263	1,285	2,387	8,407	2,910	7,820
Groundnuts	256	862	8,877	21,383	29,401	118,503	38,534	140,948
Soya Beans	-	0	145	287	34	303	179	667
Caster Seed	-	0	0	0	42	172	42	172
FRUITS & VEGETABLES	696		3,320		17,919		22,091	
Okra	6	36	110	242	211	763	327	1,042
Radiih	-	0	0	0	4	14	4	14
Turmeric	-	0	0	0	0	0	0	0
Bitter Aubergine	-	0	0	0	137	1,009	137	1,006
Garlic	-	0	0	0	27	132	27	132
Onions	627	338	764	2,034	1,443	7,631	2,729	10,301
Ginger	-	0	80	71	571	2,674	651	2,145
Cabbage	11	144	193	1,325	2,194	10,319	2,397	11,787
Tomatoes	178	730	1,436	5,109	8,006	38,866	9,621	42,697
Spinach	7	101	111	996	471	3,322	589	4,310
Carrot	-	0	11	132	872	2,398	683	2,531
Chilies	74	231	169	399	674	4,442	1,107	5,662
Amaranth	-	0	149	1,209	1,026	10,648	1,175	11,257
Pumpkins	-	0	12	117	548	4,689	500	4,206
Cucumber	33	361	78	286	365	2,342	498	2,986
Egg Plant	-	0	17	34	378	1,753	396	1,707
Water Melon	19	79	197	397	753	2,184	969	2,860
Cauliflower	-	0	12	191	49	121	61	312
CASH CROPS	828		47,703		85,399		113,427	
Seaweed	-	-	-	-	173	339	173	339
Cotton	841	800	48,947	43,462	62,366	75,032	110,154	116,294
Tobacco	-	-	130	533	2,690	7,443	2,820	7,976
Pyrethrum	87	195	27	132	167	691	280	1,018
Jute	-	-	-	-	-	-	-	-
Mulberry	24,804		318,718		1,118,633		1,467,866	
Zanzibar	1,098		52,512		53,650		16,675	
National	25,702		369,230		1,170,142		1,474,730	

7.1.11 ANNUAL CROP & VEGETABLE PRODUCTION: Planted Area (hectare) & Number of Crop Growing Households by Insecticide use by Crop during 2002/03 agriculture year - SHORT RAINY SEASON

Regions	Insecticide Use						% of Planted area using Pesticide
	Number of Households using Pesticide	Planted Area (ha) Using Pesticide	Number of Households NOT using Pesticide	Planted Area (ha) not using Pesticide	Total Number of Households Planting in VULI	Total Planted Area (ha) in VULI	
CEREALS		50,554		842,232		882,786	5.7
Maize	81,833	44,214	1,342,839	681,917	1,424,672	726,131	6.1
Paddy	7,107	4,259	147,351	97,825	154,458	102,184	4.2
Sorghum	3,235	1,802	117,843	90,207	120,878	52,008	3.5
Burush Millet	0	0	1,785	1,908	1,785	1,908	0.0
Finger Millet	552	255	28,113	10,109	28,665	10,364	2.5
Wheat	0	0	0	0	0	0	0.0
Barley	114	23	280	167	374	190	12.2
ROOTS & TUBERS		4,238		74,699		78,937	5.4
Cassava	1,114	330	35,821	11,372	36,935	11,702	2.8
Sweet Potatoes	3,669	965	229,482	46,790	233,151	47,755	2.0
Irish Potatoes	7,014	2,936	43,931	11,488	50,946	14,402	20.4
Yams	117	7	7,550	1,133	7,667	1,140	0.8
Cocoyam	0	0	21,433	3,938	21,433	3,938	0.0
PULSES		15,152		289,792		304,945	5.0
Mung Beans	12	2	583	183	595	185	1.0
Beans	36,247	12,308	793,044	247,153	829,291	259,481	4.7
Cowpeas	8,950	1,705	111,845	28,294	118,595	30,000	5.7
Green Gram	2,033	570	38,387	10,761	40,430	11,331	5.0
Pigeon Peas	0	0	27	8	27	8	0.0
Chick Peas	129	209	1,114	420	1,243	629	33.2
Bambara nuts	163	33	10,266	1,295	10,429	1,328	2.5
Field Peas	774	324	7,023	1,682	7,798	2,008	18.2
OIL SEEDS & OIL NUTS							
Sunflower	6,291	1,734	160,499	43,936	166,790	45,670	3.8
Simsim	1,479	395	15,803	3,609	17,282	4,004	9.9
Simsim	96	24	7,724	2,886	7,620	2,910	0.8
Groundnuts	4,440	1,189	136,408	37,365	140,848	38,534	3.0
Soya Beans	152	123	515	56	667	179	68.7
Castor Seed	124	23	48	20	172	42	53.5
FRUITS & VEGETABLES		14,157		7,935		22,091	64.1
Okra	611	218	431	111	1,042	327	66.1
Radish	0	0	14	4	14	4	0.0
Turmeric	0	0	0	0	0	0	0.0
Bitter Aubergine	301	30	707	107	1,008	137	22.2
Garlic	0	0	132	27	132	27	0.0
Onions	5,509	1,851	4,792	873	10,301	2,723	68.0
Ginger	149	24	1,996	627	2,145	651	3.6
Cabbage	8,836	1,859	2,951	538	11,787	2,397	77.8
Tomatoes	30,440	7,065	12,257	2,566	42,697	8,621	73.4
Spinnaash	2,075	307	2,235	282	4,310	589	52.1
Carrot	1,244	418	1,287	465	2,531	893	47.4
Chilies	3,085	704	1,067	403	5,062	1,107	63.6
Amaranth	3,157	379	8,101	798	11,257	1,175	32.3
Pumpkins	167	24	4,039	536	4,206	580	4.2
Cucumber	1,750	317	1,238	149	2,998	486	68.0
Egg Plant	1,064	191	703	205	1,787	396	48.2
Water Mellon	1,863	761	798	208	2,680	969	78.5
Cauliflower	181	12	121	49	312	61	19.1
CASH CROPS		67,149		48,278		113,427	59.2
Seaweed	-	-	339	173	339	173	0.0
Cotton	63,361	56,312	52,933	43,842	116,294	110,154	60.2
Tobacco	1,511	838	6,464	1,982	7,876	2,820	29.7
Pyrethrum	-	-	1,018	280	1,018	280	0.0
Jute	-	-	-	-	-	-	0.0
Mainland		152,984		1,304,871		1,457,855	10.5
Zanzibar		629		10,431		11,058	
National		153,612		1,315,302		1,468,913	

7.1.12 ANNUAL CROP & VEGETABLE PRODUCTION: Planted Area (hectare) & Number of Households by Fungicide Use by Crop during 2002/03 agriculture year - SHORT RAINY SEASON							
Regions	Fungicide Use						% of Planted area using Fungicide
	Number of Households using Fungicide	Planted Area (ha) Fungicide Used	Number of Households NOT using Fungicide	Planted Area (ha) Fungicide not Used	Total Number of Households Planting in VULI	Total Planted Area (ha) in VULI	
CEREALS		16,822		875,863		892,786	1.9
Maine	19,590	13,296	1,406,123	712,834	1,424,672	726,131	1.8
Paddy	3,324	2,250	151,134	99,834	154,458	102,184	2.2
Sorghum	2,347	1,088	118,631	50,923	120,878	52,009	2.1
Burush Millet	-	-	1,785	1,908	1,785	1,908	0.0
Finger Millet	449	190	28,216	10,174	28,665	10,364	1.8
Wheat	-	-	-	-	-	-	0.0
Barley	-	-	374	190	374	190	0.0
ROOTS & TUBERS		2,949		75,988		78,937	3.7
Cassava	384	73	36,551	11,829	36,935	11,702	0.6
Sweet Potatoes	2,121	628	231,030	47,128	233,151	47,755	1.3
Irish Potatoes	4,821	2,237	46,125	12,165	50,946	14,402	15.5
Yams	-	-	7,867	1,140	7,867	1,140	0.0
Cocoyam	119	12	21,313	3,926	21,433	3,938	0.3
PULSES		4,844		390,100		304,945	1.8
Mung Beans	12	2	583	183	585	188	1.0
Beans	10,949	3,954	818,342	255,507	829,291	259,461	1.5
Cowpeas	1,851	427	118,944	29,573	118,985	30,000	1.4
Green Gram	787	385	38,843	10,948	40,430	11,331	3.4
Pigeon Peas	-	-	27	6	27	6	0.0
Chick Peas	-	-	1,243	629	1,243	629	0.0
Bambaranute	-	-	10,429	1,328	10,429	1,328	0.0
Field Peas	375	78	7,422	1,930	7,786	2,006	3.8
OIL SEEDS & OIL NUTS		666		45,003		45,670	1.5
Sunflower	234	40	17,048	3,964	17,282	4,004	1.0
Simsim	244	54	7,576	2,858	7,820	2,910	1.9
Groundnuts	2,164	550	138,685	37,984	140,848	38,534	1.4
Soya Beans	-	-	667	179	667	179	0.0
Castor Seed	124	23	48	20	172	42	53.5
FRUITS & VEGETABLES		10,443		11,648		22,091	47.3
Okra	223	116	819	208	1,042	327	38.2
Radish	-	-	14	4	14	4	0.0
Turmeric	-	-	-	-	-	-	0.0
Bitter Aubergine	141	14	887	123	1,008	137	10.4
Garlic	-	-	132	27	132	27	0.0
Onions	2,820	566	7,481	2,157	10,301	2,723	20.8
Ginger	149	24	1,906	827	2,145	651	3.8
Cabbage	4,821	758	8,988	1,841	11,787	2,397	31.5
Tomatoes	28,751	8,871	13,946	2,750	42,897	9,621	71.4
Spinach	855	96	3,454	491	4,310	589	16.7
Carrot	1,230	404	1,300	478	2,531	883	45.7
Chilies	1,931	430	3,131	877	5,082	1,107	38.8
Amaranth	1,320	165	9,937	1,010	11,257	1,175	14.0
Pumpkins	140	21	4,066	539	4,206	560	3.7
Cucumber	1,647	297	1,341	188	2,986	466	63.9
Egg Plant	702	138	1,086	257	1,787	396	35.0
Water Melon	1,389	540	1,271	429	2,660	969	55.7
Cauliflower	-	-	312	61	312	61	0.0
CASH CROPS		4,811		108,616		113,427	4.2
Sawood	-	-	339	173	339	173	0.0
Cotton	3,949	4,205	112,345	105,948	116,294	110,154	3.8
Tobacco	792	608	7,184	2,214	7,976	2,820	21.5
Pyrethrum	-	-	1,018	280	1,018	280	0.0
Jute	-	-	-	-	-	-	0.0
Mainland		40,536		1,417,319		1,437,855	2.8
Zanzibar		12		11,047		11,058	
National		40,548		1,428,366		1,448,913	

7.1.13 ANNUAL CROP & VEGETABLE PRODUCTION: Planted Area (hectare) & Number of Crop Growing Households by Herbicide Use by Crop during 2002/03 agriculture year - SHORT RAINY SEASON

Region	Herbicide use						% of area planted under Herbicide in SHORT rainy season
	Number of Households using Herbicide	Planted Area (ha) with Herbicide	Number of Households NOT using Herbicide	Planted Area (ha) with no Herbicide	Total Number of Households Planting In VULI	Total Planted Area (ha) in VULI	
CEREALS		27,347		885,439		892,785.71	3.1
Maize	20,410	14,539	1,404,283	711,891	1,424,872	728,131	2.0
Paddy	10,885	11,918	143,574	90,298	154,458	102,184	11.7
Sorghum	1,888	752	119,282	51,257	120,878	52,009	1.4
Bulrush Millet	-	-	1,785	1,908	1,785	1,908	0.0
Finger Millet	535	140	28,130	10,224	28,685	10,384	1.4
Wheat	-	-	-	-	-	-	0.0
Barley	-	-	374	190	374	190	0.0
ROOTS & TUBERS		1,323		77,814		78,937	1.7
Cassava	173	81	36,782	11,840	36,835	11,702	0.5
Sweet Potatoes	2,245	545	230,906	47,210	233,151	47,755	1.1
Irish Potatoes	1,825	656	48,320	13,735	50,946	14,402	4.6
Yams	170	17	7,487	1,123	7,667	1,140	1.5
Cocoyam	224	34	21,206	3,904	21,433	3,938	0.9
PULSES		4,485		300,489		304,945	1.5
Mung Beans	-	-	595	185	595	185	0.0
Beans	8,022	3,538	820,289	255,921	828,291	258,481	1.4
Cowpeas	1,498	554	117,086	29,448	118,586	30,000	1.8
Green Gram	872	380	39,758	10,951	40,430	11,331	3.4
Pigeon Peas	-	-	27	8	27	8	0.0
Chick Peas	-	-	1,243	629	1,243	629	0.0
Bambara nuts	118	12	10,313	1,318	10,429	1,328	0.9
Field Peas	-	-	7,798	2,008	7,798	2,008	0.0
OIL SEEDS & OIL NUTS		986		44,683		45,670	2.2
Sunflower	547	114	16,635	3,890	17,282	4,004	2.9
Slimsims	-	-	7,820	2,910	7,820	2,910	0.0
Groundnuts	2,889	872	137,980	37,882	140,848	38,534	2.3
Soya Beans	-	-	667	179	667	179	0.0
Caster Seed	-	-	172	42	172	42	0.0
FRUITS & VEGETABLES		2,485		19,608		22,091	11.3
Okra	-	-	1,042	327	1,042	327	0.0
Radish	-	-	14	4	14	4	0.0
Turmeric	-	-	-	-	-	-	0.0
Bitter Aubergine	-	-	1,008	137	1,008	137	0.0
Garlic	-	-	132	27	132	27	0.0
Onions	789	654	9,512	2,060	10,301	2,723	24.4
Ginger	-	-	2,145	681	2,145	651	0.0
Cabbage	771	142	11,018	2,255	11,787	2,397	5.9
Tomatoes	3,727	898	38,970	8,823	42,897	9,621	10.4
Spinnaech	543	75	3,757	514	4,310	589	12.7
Carrot	514	208	2,017	675	2,831	883	29.5
Chillies	228	29	4,895	1,078	5,082	1,107	2.6
Amaranths	508	88	10,751	1,108	11,257	1,175	5.8
Pumpkins	-	-	4,206	580	4,206	550	0.0
Cucumber	520	100	2,468	365	2,886	458	21.5
Egg Plant	183	41	1,634	334	1,787	395	10.5
Water Melon	415	161	2,245	808	2,860	969	17
Cauliflower	-	-	312	61	312	61	0
CASH CROPS		3,179		110,248		113,427	3
Seaweed	-	-	339	173	339	173	0
Cotton	3,650	3,058	112,644	107,095	118,294	110,154	3
Tobacco	395	120	7,581	2,699	7,976	2,820	4
Pyrethrum	-	-	1,018	280	1,018	280	0
Jute	-	-	-	-	-	-	0
Mainland		39,808		1,418,049		1,457,855	3
Zanzibar		21		11,037		11,058	
National		39,827		1,429,086		1,468,913	

7.1.14 ANNUAL CROP & VEGETABLE PRODUCTION: Planted Area (hectare) & Number of Crop Growing Households by Improved Seeds Use by Crop during 2002/03 agriculture year - SHORT RAINY SEASON

Regions	Improved Seed						% of area planted using improved seed
	Number of Households using Improved Seed	Planted Area (ha) Using Improved Seed	Number of Households NOT Using Improved Seeds	Planted Area (ha) Not Using Improved Seed	Total Number of Households Planting in MASIKA	Total Planted Area (ha) In MASIKA	
CEREALS		161,827		730,999		892,786	18.1
Maize	274,382	144,280	1,150,291	581,871	1,424,672	726,131	19.9
Paddy	22,227	12,179	132,231	90,005	154,458	102,184	11.9
Sorghum	9,463	4,729	111,415	47,281	120,878	62,009	9.1
Bulrush Millet	124	100	1,061	1,808	1,785	1,908	5.3
Finger Millet	1,271	537	27,394	9,828	28,665	10,364	5.2
Wheat	0	0	0	0	0	0	0.0
Barley	114	23	280	167	374	190	12.2
ROOTS & TUBERS		11,319		67,617		78,937	14.3
Cassava	3,308	1,459	33,828	10,248	30,935	11,702	12.4
Sweet Potatoes	25,345	5,331	207,908	42,424	233,151	47,755	11.2
Irish Potatoes	13,176	4,175	37,770	10,228	50,948	14,402	29.0
Yams	1,306	152	6,361	688	7,667	1,140	13.3
Cocoyam	1,829	206	19,803	3,733	21,433	3,936	5.2
PULSES		35,398		269,546		304,945	11.6
Mung Beans	0	0	585	185	595	185	0.0
Beans	88,746	29,810	740,545	229,851	829,291	259,461	11.4
Cowpeas	12,727	3,061	105,867	28,939	118,595	30,000	10.2
Green Gram	4,102	2,170	36,328	9,181	40,430	11,331	19.1
Pigeon Peas	0	0	27	6	27	6	0.0
Chick Peas	409	130	834	498	1,243	829	20.7
Bambaranuts	1,225	134	9,204	1,193	10,429	1,328	10.1
Field Peas	824	292	6,873	1,713	7,798	2,006	14.6
OIL SEEDS & OIL NUTS		4,657		40,813		45,670	10.6
Sunflower	4,011	1,285	13,271	2,719	17,282	4,004	32.1
Simsim	1,138	424	6,684	2,485	7,820	2,910	14.6
Groundnuts	11,518	2,979	129,332	35,555	140,848	38,534	7.7
Soya Beans	287	145	380	34	667	179	80.9
Castor Seed	124	23	46	20	172	42	53.5
FRUITS & VEGETABLES		16,359		5,732		22,091	74.1
Okra	380	111	882	218	1,042	327	33.9
Radish	0	0	14	4	14	4	0.0
Turnerite	0	0	0	0	0	0	0.0
Bitter Aubergine	43	6	965	131	1,008	137	4.2
Garlic	0	0	132	27	132	27	0.0
Onions	7,002	2,038	3,299	686	10,301	2,723	74.8
Ginger	1,065	408	1,080	243	2,145	651	62.6
Cabbage	10,176	2,082	1,611	315	11,707	2,397	86.8
Tomatoes	31,693	7,204	11,006	2,417	42,697	9,621	74.9
Spinnaeh	3,931	534	378	55	4,310	589	90.7
Carrot	2,280	576	250	307	2,531	883	65.2
Chillies	4,418	981	844	146	5,062	1,107	86.8
Amaranthis	6,924	757	4,333	418	11,257	1,175	64.4
Pumpkins	633	130	3,573	429	4,206	560	23.3
Cucumber	2,081	330	907	136	2,988	468	70.8
Egg Plant	1,012	280	775	135	1,767	388	65.8
Water Melon	2,312	903	349	67	2,660	988	93.1
Cauliflower	312	61	-	-	312	61	100.0
CASH CROPS		103,380		10,067		113,427	91.1
Seaweed	316	171	23	2	339	173	98.7
Cotton	105,190	101,563	11,104	8,591	116,294	110,154	92.2
Tobacco	4,302	1,607	3,674	1,213	7,978	2,820	57.0
Pyrethrum	148	20	670	260	1,018	280	7.3
Jute	-	-	-	-	-	-	0.0
Mainland		333,121		1,124,734		1,457,855	22.9
Zanzibar		3,321		7,737		11,059	
National		336,442		1,132,472		1,468,913	

7.1.15 ANNUAL CROP & VEGETABLE PRODUCTION: Planted Area (hectares) & Number of Crop Growing Households by Irrigation Use by Crop during 2002/03 agriculture year - SHORT RAINY SEASON

Crop	Irrigation use						% of Planted area using Irrigation
	Number of Households using Irrigation	Planted Area (ha) Using Irrigation	Number of Households NOT using Irrigation	Planted Area (ha) not Using Irrigation	Total Number of Households Planting in VULI	Total Planted Area (ha) in VULI	
CEREALS		33,404		859,381		892,785	3.7
Maize	48,478	24,558	1,376,164	701,572	1,424,672	726,131	3.4
Paddy	16,940	7,798	137,518	94,386	154,458	102,184	7.6
Sorghum	1,701	785	119,177	51,244	120,678	52,008	1.5
Bulrush Millet	0	0	1,785	1,908	1,785	1,908	0.0
Finger Millet	579	282	28,088	10,082	28,685	10,384	2.7
Wheat	0	0	0	0	0	0	0.0
Barley	0	0	374	190	374	190	0.0
ROOTS & TUBERS		2,713		78,224		78,937	3.4
Cassava	1,148	380	35,786	11,321	35,835	11,702	3.3
Sweet Potatoes	4,713	841	228,438	46,915	233,151	47,755	1.8
Irish Potatoes	6,308	1,410	44,637	12,982	50,946	14,402	9.8
Yams	106	8	7,561	1,131	7,667	1,140	0.8
Cocoyam	617	74	20,816	3,864	21,433	3,936	1.9
PULSES		7,687		297,258		304,945	2.6
Mung Beans	12	2	583	183	595	185	1.0
Beans	23,534	7,032	805,756	252,426	829,291	259,461	2.7
Cowpeas	2,302	490	116,282	29,509	118,595	30,000	1.6
Green Gram	296	48	40,134	11,283	40,430	11,331	0.4
Pigeon Peas	0	0	27	6	27	6	0.0
Chick Peas	0	0	1,243	629	1,243	629	0.0
Bambara nuts	377	38	10,052	1,289	10,429	1,326	2.9
Field Peas	375	76	7,422	1,930	7,798	2,006	3.8
OIL SEEDS & OIL NUTS		664		45,005		45,670	1.5
Sunflower	494	108	16,786	3,898	17,282	4,004	2.7
Simsim	128	26	7,693	2,884	7,820	2,910	0.9
Groundnuts	2,062	532	139,797	38,002	140,648	38,534	1.4
Soya Beans	0	0	667	179	667	179	0.0
Castor Seed	0	0	172	42	172	42	0.0
FRUITS & VEGETABLES		16,354		5,737		22,091	74.0
Okra	523	99	519	227	1,042	327	30.5
Radish	0	0	14	4	14	4	0.0
Turmeric	0	0	0	0	0	0	0.0
Bitter Aubergine	475	59	532	79	1,008	137	42.8
Garlic	0	0	132	27	132	27	0.0
Onions	7,729	2,253	2,572	470	10,301	2,723	82.7
Ginger	1,286	436	859	212	2,145	651	67.4
Cabbage	9,618	2,032	2,189	385	11,787	2,397	84.8
Tomatoes	32,421	7,437	10,276	2,184	42,697	9,621	77.3
Spinach	3,123	360	1,187	229	4,310	589	81.2
Carrot	1,578	343	953	540	2,531	883	38.9
Chillies	4,113	919	949	187	5,062	1,107	83.1
Amaranthus	8,072	870	3,185	304	11,257	1,175	74.1
Pumpkins	769	84	3,437	476	4,206	560	15.0
Cucumber	2,290	379	696	87	2,988	466	81.4
Egg Plant	941	260	848	135	1,787	396	65.6
Water Melon	2,101	759	559	211	2,860	969	78.3
Cauliflower	312	61	-	-	312	61	100.0
CASH CROPS		1,887		111,540		113,427	1.7
Sesweed	-	-	339	173	339	173	0.0
Cotton	1,779	1,820	114,515	108,534	116,294	110,154	1.5
Tobacco	922	287	7,054	2,553	7,976	2,820	9.5
Pyrethrum	-	-	1,018	280	1,018	280	0.0
Jute	-	-	-	-	-	-	0.0
Mainland		62,710		1,395,145		1,457,855	4.3
Zanzibar		1,358		9,701		11,058	
National		64,068		1,404,845		1,468,913	

**ANNUAL CROP & VEGETABLE PRODUCTION –
LONG RAINY SEASON**

7.2.1 TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of crop growing Households Planting Crops in the Long Rainy Season by Region during the 2002/03 agriculture year

Region	Long Rainy Season				Total number of households growing crops
	Households Growing Crops		Crop growing Households NOT Growing Crops		
	Number	%	Number	%	
Dodoma	322,651	99.9	461	0.1	323,112
Arusha	126,736	91.5	11,743	8.5	138,479
Kilimanjaro	163,110	78.2	51,077	23.8	214,187
Tanga	233,601	88.7	29,780	11.3	263,381
Morogoro	224,310	86.5	34,836	13.5	259,146
Pwani	70,400	50.5	69,043	49.5	139,444
Dar es Salaam	14,686	76.3	4,368	23.7	19,054
Lindi	151,154	98.8	1,860	1.2	153,015
Mtwara	226,624	96.9	2,578	1.1	229,202
Ruvuma	187,149	98.0	3,994	2.0	191,143
Idinga	277,863	99.7	854	0.3	278,717
Mbeya	343,685	92.5	27,065	7.5	371,650
Singida	179,359	100.0	41	0.0	179,400
Tabora	235,456	99.9	165	0.1	235,621
Rukwa	171,118	99.8	730	0.4	171,848
Kigoma	118,053	61.1	75,741	38.9	193,794
Shinyanga	374,699	99.9	311	0.1	375,010
Kagera	196,840	44.9	182,759	55.1	379,599
Mwanza	119,525	35.3	213,404	64.7	332,929
Mara	124,798	67.2	60,923	32.8	185,721
Manyara	149,363	98.4	814	0.6	150,177
Mainland	3,972,069	83.4	789,748	16.6	4,761,817
Zanzibar	71,341	74	25,181	26	96,522
National	4,043,430	167	814,927	43	4,858,357

7.2.2 ANNUAL CROP AND VEGETABLE PRODUCTION: Area Planted (hectare) in the Long Rainy Season by Region, 2002/03 agriculture year - MASIKA

Region	Long Rainy Season		Total area (ha) planted
	Planted Area (ha)		
	Hectares	%	
Dodoma	658,046	100	658,024
Arusha	141,306	63	169,876
Kilimanjaro	104,142	60	173,401
Tanga	267,714	62	428,535
Morogoro	286,579	69	414,183
Pwani	106,533	62	177,674
Dar es Salaam	17,614	63	21,121
Lindi	195,375	100	195,375
Mtwara	256,823	100	256,405
Ruvuma	358,182	100	358,272
Idinga	405,935	100	405,960
Mbeya	417,588	91	459,226
Singida	316,143	99	321,434
Tabora	532,615	100	532,615
Rukwa	302,345	100	303,394
Kigoma	119,831	45	264,674
Shinyanga	957,423	100	960,250
Kagera	117,709	33	360,621
Mwanza	240,930	36	679,107
Mara	213,341	64	333,637
Manyara	261,239	98	265,260
Mainland	6,282,486	81	7,740,344
Zanzibar	67,219	86	78,276
National	6,349,707	81	7,818,621

7.2.10 ANNUAL CROP & VEGETABLE PRODUCTION: Number of Households and Planted Area (hectare) by Fungicide Use by Region - Long Rainy Season

Regions	Fungicide Use						% of Planted area using Fungicide
	Number of Households using Fungicide	Planted Area (ha) Fungicide Used	Number of Households NOT using Fungicide	Planted Area (ha) Fungicide not Used	Total Number of Households Planting in MASIKA	Total Planted Area (ha) in MASIKA	
Dodoma	3,870	9,174	316,760	648,870	322,651	658,045	1.4
Anusha	5,290	7,216	121,446	134,069	126,736	141,305	5.1
Kilimanjaro	6,394	4,205	166,716	99,837	163,110	104,142	4.0
Tanga	2,817	3,208	230,664	294,507	233,601	267,714	1.2
Morogoro	5,083	5,143	219,227	291,437	224,310	286,579	1.8
Pwani	1,872	1,522	66,528	106,011	70,400	109,533	1.4
Coastal	1,050	1,068	13,648	16,548	14,695	17,814	6.1
Lindi	2,669	2,481	146,486	192,894	151,154	195,375	1.3
Mtwara	3,780	4,785	222,844	251,138	226,624	255,623	1.9
Ruvuma	4,628	7,142	182,222	351,020	187,149	356,162	2.0
Iringa	8,434	22,214	289,429	383,721	277,863	405,935	6.6
Mbeya	7,411	10,773	336,274	406,813	343,685	417,566	2.6
Singida	1,873	3,462	177,465	315,860	179,359	319,143	1.1
Tabora	9,045	20,484	226,411	512,131	235,456	632,615	3.8
Rukwa	2,569	3,782	186,546	296,563	171,116	302,345	1.3
Kigoma	3,019	1,294	115,937	118,537	118,953	119,831	1.1
Shinyanga	11,620	26,689	383,060	930,734	374,699	957,423	2.8
Kagera	3,238	962	153,803	116,747	156,840	117,709	0.8
Mwanza	3,865	3,347	115,560	237,562	119,525	240,930	1.4
Mara	3,030	1,770	121,768	211,571	124,798	213,341	0.8
Manyara	3,261	7,577	146,102	253,863	149,363	261,239	2.9
Mainland	95,313	148,298	3,876,776	6,134,182	3,972,069	6,282,469	2.4
%	2.4	2.4	97.6	97.6	100.0	100.0	
Zanzibar	213	53	71,128	67,165	71,341	67,218	
National	95,526	148,351	3,947,904	6,201,357	4,043,430	6,349,707	

PERMANENT CROP PRODUCTION

SECONDARY PRODUCTS

7.4.1 SECONDARY PRODUCTS: Number of Crop Growing Households Utilising Secondary Products by Region during 2002/03 agriculture year

Region	Households using secondary products		Households that do not use secondary products		Total
	Number	%	Number	%	
Dodoma	71,619	22	251,493	78	323,112
Arusha	77,411	56	61,068	44	138,479
Kilimanjaro	148,630	69	65,556	31	214,187
Tanga	31,574	12	231,953	88	263,528
Morogoro	19,100	7	240,146	93	259,246
Pwani	8,868	6	130,578	94	139,446
Dar es Salaam	5,169	27	14,095	73	19,264
Lindi	6,014	4	147,001	96	153,015
Mtwara	21,983	10	207,219	90	229,202
Ruvuma	34,148	18	156,895	82	191,043
Iringa	77,398	28	201,319	72	278,717
Mbeya	96,365	26	275,284	74	371,650
Singida	115,717	65	63,682	35	179,400
Tabora	59,875	25	175,746	75	235,621
Rukwa	9,187	5	162,659	95	171,846
Kigoma	42,355	22	152,339	78	194,695
Shinyanga	138,040	37	237,507	63	375,547
Kagera	71,449	20	278,150	80	349,600
Mwanza	63,164	19	275,764	81	338,928
Mara	30,626	16	155,165	84	185,791
Manyanza	82,605	55	67,673	45	150,278
Mainland	1,211,295	25	3,551,293	75	4,762,589
Zanzibar	14,945	15	81,276	85	96,221
National	1,226,241	25	3,632,569	75	4,858,810

AGROPROCESSING

STORAGE

9.4 CROP STORAGE: Number of Crop Growing Households Storing Crops by type of Crop stored for 2002/03 agriculture year

Crop	Main Purpose of storage								Total Number of Households
	Food for the Household		To Sell for Higher Price		Seeds for Planting		Other		
	Number of Households	%	Number of Households	%	Number of Households	%	Number of Households	%	
Maize	3,082,170	89	75,905	2	282,607	8	4,292	0	3,444,974
Paddy	530,084	78	40,042	6	112,036	16	373	0	682,536
Sorghum & Millet	461,009	76	30,404	5	113,305	19	1,777	0	606,496
Beans & Pulses	1,134,888	89	59,705	4	449,083	27	3,726	0	1,647,082
Wheat	27,067	48	4,958	9	24,347	43	244	0	56,616
Coffee	3,539	30	6,489	55	1,180	10	540	5	11,728
Cashewnut	3,107	40	2,111	27	2,641	34	4	0	7,863
Tobacco	0	0	1,083	96	0	0	43	4	1,127
Cotton	822	4	20,390	92	0	0	988	4	22,200
Ground Nuts/ Bamberanauts	231,766	53	40,266	9	167,574	38	424	0	440,029

9.5 CROP STORAGE: Number of Households that Stored Crops by Length of Storage and Crop Type for 2002/03 Agriculture Year

Crop	Normal length of Storage						Total Number of Households
	Less than 3 Months		Between 3 and 6 Months		Over 6 Months		
	Number of Households	%	Number of Households	%	Number of Households	%	
Maize	646,679	18	1,701,100	50	1,180,602	34	3,430,789
Paddy	84,909	13	317,849	47	276,949	41	678,607
Sorghum & Millet	108,149	18	297,245	49	197,674	33	603,068
Beans & Pulses	263,368	18	816,595	50	668,548	34	1,658,609
Wheat	2,884	5	26,994	48	27,237	49	68,116
Coffee	3,077	26	4,840	41	3,806	32	11,728
Cashewnut	4,249	55	1,070	22	1,840	24	7,768
Tobacco	461	45	68	7	484	48	1,013
Cotton	8,983	39	13,139	59	378	2	22,200
Ground Nuts/ Bamberanauts	55,961	13	208,027	48	172,581	40	436,473

9.6 CROP STORAGE: Number of Crop Growing Households Storing Crops by type of Crop stored for 2002/03 agriculture year

Region	Main Method of Storage						Other
	In Locally Made Traditional Structure	In Improved Locally Made Structure	In Modern Store	In Sacks/Open Drum	In Airtight Drum	Unprotected Pile	
Dodoma	64,392	1,985	462	124,842	681	674	9,171
Arusha	24,318	5,593	1,209	73,771	6,967	379	273
Kilimanjaro	12,334	6,606	636	53,088	68,908	291	713
Tanga	170,859	3,916	134	43,243	2,035	6,288	1,089
Morogoro	61,749	4,577	386	145,443	2,619	1,670	1,659
Pwani	25,848	1,638	138	12,396	796	1,740	1,616
Dar es Salaam	2,298	426	0	4,651	1,667	29	261
Lindi	75,282	2,590	894	14,280	1,466	806	2,088
Mbeya	123,062	3,647	846	28,749	1,779	779	2,673
Ruvuma	66,102	3,702	361	106,032	247	1,490	1,821
Iringa	112,678	4,217	777	137,841	888	667	2,190
Mboya	103,639	4,054	263	222,668	866	1,261	4,016
Singida	104,564	1,172	293	54,162	537	85	940
Tabara	93,494	2,312	0	120,438	361	686	404
Rukwa	41,282	766	203	120,618	276	661	201
Qoqoma	65,673	1,600	0	116,687	0	822	1,251
Shinyanga	132,513	4,886	936	172,167	204	1,601	1,196
Kagera	106,472	3,706	1,100	206,139	378	678	1,716
Mwanza	55,898	2,604	1,038	233,651	744	1,653	268
Mara	82,393	1,017	141	51,336	0	182	408
Manyara	55,950	2,899	235	63,055	567	277	447
Highland	1,679,658	63,717	10,061	2,166,365	91,488	22,756	34,148
Zanzibar	13,679	1,423	0	35,076	312	2,046	1,532
National	1,693,237	65,140	10,061	2,141,440	91,799	24,842	36,679

9.7 CROP STORAGE: Number of Households by Duration of Storage and Region for 2002/03 agriculture year

Region	Less than 3 Months	Between 3 and 5 months	Over 5 Months
Dodoma	16,513	108,287	77,187
Arusha	18,418	57,825	36,768
Kilimanjaro	14,000	58,384	72,383
Tanga	71,111	117,504	38,847
Morogoro	35,828	117,601	64,673
Pwani	11,847	22,428	8,699
Dar es Salaam	2,339	4,128	2,981
Lindi	12,089	49,965	36,680
Mtwara	29,584	70,823	61,029
Ruvuma	22,158	69,082	70,535
Iringa	15,983	102,316	140,811
Mbeya	31,230	152,148	153,296
Singida	60,511	74,085	27,147
Tabora	40,480	123,640	53,525
Rukwa	8,939	60,208	73,847
Kigoma	32,896	108,188	44,650
Shinyanga	60,679	182,717	70,048
Kagera	37,762	158,228	124,163
Mwanza	50,475	148,134	99,137
Mara	29,965	61,778	24,032
Manyara	16,214	54,992	51,894
Mainland	639,500	1,937,289	1,331,484
Zanzibar	9,651	22,130	21,987
National	649,151	1,959,419	1,353,471

9.8 CROP STORAGE: Number of Households by Main Purpose of Storage and Region during 2002/03 agriculture year

Region	Food for the Household	To Sell for Higher Price	Seed for Planting	Other
Dodoma	130,144	9,665	61,455	694
Arusha	104,140	1,833	6,336	0
Kilimanjaro	134,085	3,963	4,807	121
Tanga	209,482	1,715	16,322	33
Morogoro	176,678	4,184	35,603	1,337
Pwani	34,714	807	8,463	0
Dar es Salaam	5,682	65	3,675	27
Lindi	64,099	952	32,275	69
Mtwara	103,044	2,681	55,604	96
Ruvuma	169,692	4,328	11,348	107
Iringa	236,459	8,101	11,789	760
Mbeya	301,685	15,716	18,235	729
Singida	157,714	583	3,466	0
Tabora	195,606	8,660	13,324	25
Rukwa	148,152	4,979	13,747	115
Kigoma	164,659	5,653	15,820	0
Shinyanga	296,782	5,068	8,480	113
Kagera	248,632	7,736	64,281	462
Mwanza	273,841	3,864	17,789	253
Mara	119,837	5,354	10,215	70
Manyara	118,504	2,117	2,514	65
Mainland	3,388,755	98,064	418,307	5,075
Zanzibar	20,085	2,227	31,605	0
National	3,408,839	100,291	449,912	5,075

MARKETING

10.1 MARKETING: Number of Crop Producing households reporting Selling agricultural produce during 2003/04 by region

Region	Selling Crops				Total number of households
	Number of households that sold	%	Number of households that did not sell	%	
Dodoma	190,600	59	132,312	41	323,112
Arusha	83,822	61	54,537	39	138,470
Kilimanjaro	167,709	78	46,476	22	214,167
Tanga	187,188	75	68,360	25	263,526
Morogoro	182,902	71	78,344	29	268,246
Pwani	78,458	56	60,886	44	138,444
Dar es Salaam	13,976	73	5,268	27	18,244
Lindi	167,898	71	68,019	28	235,916
Mtwara	149,163	56	116,036	43	265,200
Ruvuma	178,604	59	124,119	41	302,723
Iringa	191,285	69	87,032	31	278,317
Mbeys	292,480	79	79,189	21	371,669
Singida	81,720	46	97,880	54	179,600
Tabora	131,403	56	104,218	44	235,621
Rukwa	141,587	62	88,746	38	230,333
Kagera	167,633	56	127,082	44	294,715
Shinyanga	218,317	58	159,250	42	377,567
Kagera	312,670	69	138,630	31	451,300
Mwanza	243,200	72	96,736	28	339,936
Mara	130,438	70	56,353	30	186,791
Manyara	88,121	59	62,156	41	150,277
Mainland	3,348,182	70	1,414,457	30	4,762,639
Zanzibar	81,248	65	44,075	35	125,323
National	3,409,427	70	1,449,383	30	4,858,810

10.2 MARKETING: Ranking of households by Main Reason for not Marketing their Crop produce and Region, 2002/03 agriculture year

Crop Marketing Problem	Open Market Price Too Low	No Transport	Transport Cost Too High	No Buyer	Market too Far	Farmers Association Problems	Co-operative Problems	Trade Union Problems	Government Regulatory Board Problems	Lack of Market Information	Other
Dodoma	1	4	3	6	2	8	7	9	10	5	11
Arusha	1	5	3	6	2	6	7	11	9	4	10
Kilimanjaro	1	4	2	6	3	6	7	11	9	5	10
Tanga	1	4	3	6	2	6	7	9	10	5	11
Morogoro	1	5	3	6	2	6	7	10	9	4	11
Pwani	1	5	3	6	2	6	7	10	9	4	11
Dar es Salaam	1	4	3	6	2	7	8	11	10	5	9
Lindi	1	6	3	7	4	9	5	8	10	2	11
Mtwara	1	7	4	5	6	9	3	10	8	2	11
Ruvuma	1	7	3	4	2	5	6	9	10	8	11
Iringa	1	5	3	6	2	7	8	9	10	4	11
Mbeys	1	5	3	7	2	6	8	9	10	4	11
Singida	1	4	3	6	2	6	7	10	9	5	11
Tabora	1	4	3	6	2	6	7	9	10	5	11
Rukwa	1	4	2	6	3	6	7	10	9	5	11
Kagera	1	4	2	5	3	7	8	10	11	6	9
Shinyanga	1	5	2	7	3	9	6	8	10	4	11
Kagera	1	5	3	7	2	9	6	10	8	4	11
Mwanza	1	4	2	6	3	10	7	8	9	5	11
Mara	1	4	3	5	2	6	7	10	9	6	11
Manyara	1	5	3	6	2	7	8	10	9	4	11
Total	1	4	3	6	2	6	7	10	9	5	11

10.3 MARKETING PROBLEM: Number of agriculture households reporting their main marketing problem by Region during 2002/03 agriculture year

Region	Main marketing problem										
	Open Market Price Too Low	No Transport	Transport Cost Too High	No Buyer	Market too Far	Farmers Association Problems	Co-operative Problems	Trade Union Problems	Government Regulatory Board Problems	Lack of Market Information	Other
Dodoma	132,130	8,729	11,058	4,090	27,380	457	145	748	1,758	7,688	848
Arusha	61,854	4,143	7,838	1,362	11,308	471	1,281	141	778	6,318	1,255
Kilimanjaro	141,138	12,228	24,733	7,588	20,508	118	560	478	1,481	3,908	2,788
Tanga	166,408	11,220	16,701	9,486	21,866	127	560	90	468	4,561	1,107
Morogoro	134,110	8,420	19,283	9,011	31,387	328	848	424	1,755	7,542	2,277
Pwani	61,588	3,940	5,562	5,072	8,972	535	1,368	215	473	4,541	1,968
Dar es Salaam	11,908	1,109	1,701	669	3,015	91	153	0	161	698	197
Lindi	91,378	5,398	8,376	7,287	9,347	428	3,817	541	1,012	4,783	843
Mtwara	124,914	2,587	4,151	8,302	5,256	2,043	2,878	784	2,244	8,484	2,971
Ruvuma	160,793	10,837	23,309	20,848	28,824	1,285	9,885	858	2,883	12,968	628
Singida	150,844	13,245	18,408	12,174	33,581	1,248	1,068	1,104	829	10,542	2,888
Mbeya	250,812	15,922	27,307	12,420	41,707	3,937	4,801	1,424	1,477	15,222	2,899
Singida	65,830	4,388	3,718	1,822	8,374	183	82	0	745	1,872	125
Tabora	101,201	10,889	7,812	7,045	15,854	815	10,831	173	814	2,907	490
Rufiji	118,339	7,818	17,827	10,115	26,307	902	2,304	391	289	4,682	482
Kigoma	139,940	21,004	33,053	17,830	33,322	780	984	589	1,103	3,332	8,584
Shinyanga	150,355	7,844	11,958	2,962	18,745	871	8,251	5,891	1,159	7,253	5,840
Kagera	268,893	32,182	35,103	30,457	54,042	8,252	22,871	1,206	5,715	19,133	990
Mwanza	198,077	17,891	18,891	7,818	27,522	1,448	8,360	4,174	2,783	18,882	548
Mara	108,105	7,656	9,593	4,531	21,842	1,305	675	823	847	2,254	882
Nyanya	53,033	11,821	8,204	3,057	16,331	110	0	70	760	8,425	292
Mainland	2,882,518	218,020	313,377	183,713	486,528	24,081	88,282	20,101	28,702	148,847	36,788
Zanzibar	61,054	1,043	2,234	1,127	4,081	21	783	0	0	816	119
National	2,743,572	219,063	315,612	184,840	488,580	24,111	87,085	20,101	28,702	150,183	36,870

10.4 MARKETING PROBLEMS: Number of Households Reporting Marketing Problems for agricultural products by Crop during 2002/03 Agriculture Year

Crop	Main Problem										Total	
	Open Market Price Too Low	No Transport	Transport Cost Too High	No Buyer	Market too Far	Farmers Association Problems	Co-operative Problems	Trade Union Problems	Governments Regulatory Board Problems	Lack of Market information		Other
Maize	1,030,876	63,244	76,684	15,682	126,515	2,796	3,658	1,907	5,432	20,638	12,188	1,369,102
Rice	282,821	21,861	30,010	5,142	35,139	1,444	1,850	946	620	11,386	2,817	350,238
Sorghum/Millet	157,889	10,707	12,145	12,504	26,900	980	1,167	316	1,167	9,086	1,585	234,331
Sesameed	23,533	1,364	2,044	1,635	3,700	60	470	132	317	1,742	183	35,200
Beans & Pulses	613,288	43,376	53,428	18,481	104,632	3,546	2,357	1,568	2,708	31,064	7,180	862,828
Cassava	252,482	15,961	30,118	91,343	33,229	980	898	910	1,885	9,181	2,914	379,268
Bananas	286,868	28,708	51,490	20,646	53,314	1,204	732	936	2,317	6,823	2,507	437,745
Croves	324,131	5,030	3,269	2,970	9,427	6,649	31,555	660	2,701	6,167	450	393,008
Vegetables	96,090	6,730	12,672	13,647	26,035	721	74	120	2,897	5,381	2,577	159,486
Fruit	161,440	16,416	20,556	46,207	28,182	429	440	816	1,960	7,354	1,323	266,126
Cashewnut	200,028	1,923	3,437	5,266	7,264	1,805	804	1,214	1,504	7,842	1,968	236,136
Cocunut	177,311	4,360	9,852	980	8,890	1,125	18,088	9,930	932	11,468	2,890	247,284
Tobacco	27,915	1,844	3,432	927	3,591	2,000	18,845	586	322	1,343	0	58,415
Trees/Timber/Poles	3,980	909	2,847	189	1,261	144	0	0	979	636	193	11,027
Fish	42,001	4,536	4,581	1,477	8,897	0	0	435	3,974	2,403	1,076	69,350
Other	482,545	22,158	40,748	22,533	68,441	1,578	2,358	1,224	2,083	24,968	5,481	652,111

10.8 MARKETING PROBLEMS: Number of Households Selling Crops Reporting Fourth Marketing Problems By Importance and Crop Type

Crop Marketing Problem	4th problem														Total				
	Dodoma	Arusha	Kilimanjaro	Tanga	Morogoro	Pwani	Dar es Salaam	Lindi	Mwanza	Ruvuma	Inyanga	Mtanga	Shinyanga	Kagera		Mwanza	Mara	Mtanyika	
Open Market Price Too Low	7,962	1,894	3,305	5,647	5,531	1,818	440	1,697	1,707	1,136	8,924	2,834	4,497	7,668	5,846	3,166	4,361	82,538	
No Transport	23,380	7,017	15,880	19,041	19,198	6,987	1,266	6,218	7,034	4,153	24,877	24,895	18,828	27,318	22,215	10,748	8,066	338,874	
Transport Cost Too High	40,318	10,987	18,969	27,908	26,148	11,307	1,885	8,078	18,351	8,493	31,876	43,246	28,482	48,388	38,538	18,872	14,320	498,778	
No Buyer	24,788	7,622	17,804	18,489	14,870	7,076	2,281	8,133	9,734	4,374	14,830	21,923	15,060	23,776	19,644	12,772	8,738	300,891	
Market Too Far	83,142	10,987	21,364	30,908	25,442	9,318	1,850	12,842	30,745	8,554	28,576	40,745	27,590	21,948	33,865	15,877	15,340	483,088	
Farmers Association Problems	9,082	4,854	5,474	7,248	5,181	2,718	968	4,827	10,251	2,812	18,144	16,325	8,458	18,035	8,887	5,258	3,796	148,782	
Co-operative Problems	14,018	8,213	15,514	8,323	5,378	4,368	262	14,588	20,236	6,193	7,482	18,317	5,362	33,969	17,325	3,873	2,476	238,812	
Trade Union Problems	2,630	1,643	2,269	4,296	2,968	2,291	172	7,426	13,177	1,342	3,468	4,692	2,317	8,712	12,549	7,714	2,252	96,841	
Government Regulatory Board Problems	1,856	1,378	2,637	1,781	2,181	3,837	811	5,183	18,786	411	1,577	762	2,756	18,826	8,818	4,881	1,108	84,085	
Lack of Market Information	28,018	14,781	18,900	28,733	31,853	11,408	2,867	19,887	20,796	5,041	33,733	45,374	17,248	42,359	38,842	11,837	18,459	488,191	
Other	192	1,311	117	458	346	374	20	712	3,216	180	707	2,837	268	869	418	924	43	13,794	
Not applicable	3,771	7,277	31,490	29,381	42,874	8,742	751	6,226	20,746	194,816	10,428	2,815	3,267	27,483	51,282	40,190	15,238	888,048	
Total	186,750	75,734	155,947	188,781	182,518	70,367	12,422	88,801	148,858	173,533	178,455	273,437	142,857	308,477	310,821	240,311	127,441	87,147	3,288,132

10.9 MARKETING PROBLEMS: Number of Households Selling Crops Reporting Fifth Marketing Problems By Importance and Crop Type

Crop Marketing Problem	5th problem														Total				
	Dodoma	Arusha	Kilimanjaro	Tanga	Morogoro	Pwani	Dar es Salaam	Lindi	Mwanza	Ruvuma	Inyanga	Mtanga	Shinyanga	Kagera		Mwanza	Mara	Mtanyika	
Open Market Price Too Low	7,225	1,650	4,106	3,928	3,376	2,296	280	1,747	1,806	483	5,316	2,217	3,840	4,791	4,084	1,442	2,202	89,189	
No Transport	17,825	4,024	13,594	18,081	14,823	5,438	1,510	6,085	6,280	4,811	23,874	8,330	13,857	22,460	18,190	8,170	7,272	278,152	
Transport Cost Too High	22,840	7,851	11,315	18,378	18,982	8,688	898	10,284	11,991	3,188	22,240	31,701	14,865	35,743	22,847	11,397	8,267	312,452	
No Buyer	29,880	10,265	18,907	18,144	17,307	6,887	1,298	19,304	9,846	4,048	17,483	20,778	11,818	17,898	17,696	9,888	8,288	289,833	
Market Too Far	22,822	6,273	15,968	14,201	13,783	6,860	1,768	10,718	9,706	3,873	13,188	17,933	14,327	18,859	20,824	7,176	8,217	288,874	
Farmers Association Problems	12,331	2,349	3,484	7,184	5,877	3,623	964	4,305	10,022	1,880	15,788	17,285	7,156	11,725	14,997	8,458	4,985	152,864	
Co-operative Problems	17,868	8,485	9,878	10,748	9,388	4,883	824	18,883	12,348	5,810	11,325	20,848	7,783	24,388	22,858	18,513	8,538	231,348	
Trade Union Problems	3,229	3,282	2,105	2,703	2,984	1,358	64	7,427	8,237	792	3,182	3,986	3,452	8,814	8,518	3,828	481	88,414	
Government Regulatory Board Problems	3,713	3,370	3,184	3,793	3,178	3,079	188	5,488	10,211	968	2,842	2,318	3,230	22,768	9,897	4,286	1,659	181,315	
Lack of Market Information	40,306	12,487	28,236	32,444	38,888	13,806	2,852	18,481	28,882	6,578	38,446	58,706	38,007	34,796	68,873	35,029	18,878	611,819	
Other	788	2,772	3,981	1,205	575	648	268	818	3,848	315	3,607	4,188	286	4,418	4,887	370	1,328	35,178	
Not applicable	8,420	12,112	37,718	54,585	85,538	8,791	1,124	6,428	30,704	142,858	18,538	29,881	3,883	75,544	35,782	74,721	45,857	732,351	
Total	187,294	72,278	184,521	198,087	188,182	88,734	11,268	97,731	148,088	178,118	172,822	298,828	142,148	308,318	308,981	237,848	128,874	88,884	3,181,294

EROSION CONTROL/IRRIGATION

11.1 EROSION CONTROL: Number of Households with Erosion Control/Water Harvesting Facilities on their Land By Region during 2002/03 agriculture year

Regions	Presence of Erosion Control/Water Harvesting Facilities				
	Yes	%	No	%	Total
Dodoma	33,338	10	290,383	90	323,719
Arusha	29,371	19	125,488	81	154,857
Kilimanjaro	87,748	31	148,425	69	216,173
Tanga	30,288	11	234,910	99	265,198
Morogoro	8,894	3	251,852	97	260,746
Pwani	1,935	1	138,595	99	141,530
Dar es Salaam	1,155	6	19,239	94	20,394
Lindi	998	1	152,175	99	153,173
Mtwara	1,474	1	227,840	99	229,314
Ruvuma	12,403	6	178,772	94	191,175
Iringa	58,902	21	219,816	79	278,717
Mbeya	81,540	17	311,304	83	372,844
Singida	15,529	6	164,388	91	179,915
Tabora	5,399	2	230,518	98	235,917
Rukwa	16,206	6	158,055	91	172,261
Kigoma	19,370	10	176,395	90	195,765
Shinyanga	15,199	4	362,658	96	377,857
Kagera	21,945	6	331,332	94	353,277
Mwanza	28,852	8	311,233	92	340,085
Mara	18,282	10	168,921	90	188,203
Manyara	23,486	15	130,708	85	154,194
Mainland	472,313	10	4,333,002	90	4,805,315
Zanzibar	762	1	95,790	99	96,522
National	473,075	10	4,428,762	90	4,901,837

11.2 EROSION CONTROL: Number of Erosion Control/Water Harvesting Structures by Type and Region as of 2002/03 agriculture year

Region	Type of Erosion Control								Total no of structures
	Terraces	Erosion Control Bunds	Gabions / Sandbag	Vether Grass	Tree Belts	Water Harvesting Bunds	Drainage Ditches	Dam	
Dodoma	8,520	112,974	3,141	1,134	10,832	32,840	9,671	245	179,357
Arusha	6,488	79,959	181	2,623	35,825	53,601	10,344	120	188,120
Kilimanjaro	230,562	252,425	1,478	35,796	32,368	67,592	29,871	1,084	650,165
Tanga	84,481	42,520	3,167	63,382	36,312	60,056	11,453	613	301,965
Morogoro	18,443	69,668	384	2,785	7,199	20,186	983	478	120,866
Pwani	141	9,799	473	244	7,749	6,209		164	24,779
Dar es Salaam	90	17,467	1,644	107	1,302	643	138		21,591
Lindi		33,797	207	86			103		34,193
Mtwara		40,232				151	95		40,478
Ruvuma	84,655	57,191	137	4,008	7,407	37,183	7,307	672	198,561
Iringa	166,297	211,493	3,032	35,675	19,591	103,611	12,385	3,169	555,444
Mbeya	12,784	199,991	2,428	8,103	28,183	94,995	44,542	127	390,151
Singida	9,289	112,275	0	3,950	21,962	32,039	4,500	0	184,015
Tabora	554	14,309	317	385	4,217	3,258	971	4,606	28,616
Rukwa	136	223,167		299	1,336	37,903	6,705	957	270,502
Kigoma	14,158	393,448		2,385	10,694	1,907	13,331	351	438,265
Shinyanga	131	139,237	1,652	4,716	19,127	23,561	8,643	79	197,149
Kagera	4,659	27,254	3,396	1,937	8,575	12,392	49,331	429	106,972
Mwanza	41,527	442,027	4,918	1,362	4,908	272,616	11,179	979	779,614
Mara	1,177	198,380		216	10,431	91,745	11,491	241	313,682
Manyara	571	69,216	1,078	10,989	3,302	27,296	5,927	149	108,509
Mainland	684,661	2,734,628	27,793	180,352	271,200	979,963	236,972	14,462	5,130,231
Zanzibar	0	3,503	45	635	1,302	128	128	0	5,739
National	684,661	2,738,331	27,838	180,987	272,502	980,091	237,099	14,462	5,135,970

Table 11.3 : IRRIGATION: Number of Agriculture Households by Method of Field Application of Irrigation Water and Region

Region	Households practicing irrigation		Households not practicing irrigation		Total Number of Crop Growing Households
	Number	%	Number	%	
Dodoma	9,438	3	313,674	97	323,112
Arusha	23,461	15	114,998	85	138,479
Kilimanja	48,710	23	165,477	77	214,187
Tanga	23,338	9	240,190	91	263,528
Morogoro	21,683	8	237,553	92	259,246
Pwani	5,309	4	134,134	96	139,444
Dar es Sa	1,977	10	17,287	90	19,264
Lindi	2,902	2	150,112	98	153,015
Mtwara	4,027	2	225,175	98	229,202
Ruvuma	24,560	13	166,483	87	191,043
Iringa	56,068	20	222,848	80	278,717
Mbeya	49,911	13	321,739	87	371,650
Singida	6,380	4	173,020	96	179,400
Tabora	17,181	7	218,440	93	235,621
Rukwa	16,883	10	154,983	90	171,866
Kgombe	17,417	9	177,277	91	194,695
Shinyanga	8,578	2	368,989	98	375,547
Kagera	13,757	4	335,842	96	349,600
Mwanza	14,825	4	324,304	96	338,929
Mara	5,879	3	179,912	97	185,791
Manyara	6,574	4	143,703	96	150,278
Mainland	378,687	6	4,383,901	92	4,762,589
Zanzibar	6,525	7	89,997	93	96,221
National	385,213	8	4,473,898	92	4,858,810

11.4 IRRIGATION: Area (Hectares) of Irrigatable and Irrigated land by region during 2002/03 agriculture year

Region	Irrigatable Area (ha)	Irrigated Land (ha)	% of irrigatable Land used	Total Area (ha) of land utilised	%
Dodoma	4,715	4,291	91	420,415	1.12
Arusha	24,406	19,554	80	188,852	12.92
Kilimanja	28,976	23,126	80	359,742	8.05
Tanga	8,660	7,079	82	412,372	2.10
Morogoro	11,453	8,330	81	383,073	2.99
Pwani	3,204	2,563	80	219,442	1.48
Dar es Sa	1,010	858	85	30,722	3.29
Lindi	17,929	959	5	253,790	7.06
Mtwara	2,358	2,075	88	396,673	0.61
Ruvuma	12,510	6,052	48	448,179	2.79
Iringa	23,027	18,377	80	403,180	5.71
Mbeya	45,429	33,291	73	618,866	7.34
Singida	3,583	2,017	56	207,506	1.73
Tabora	9,371	7,480	80	387,355	2.42
Rukwa	12,578	7,523	60	244,723	5.14
Kgombe	5,019	4,167	83	459,623	1.09
Shinyanga	4,912	3,856	78	528,454	0.63
Kagera	5,583	3,184	57	651,079	0.86
Mwanza	6,521	5,272	81	812,383	1.08
Mara	2,014	1,490	74	340,153	0.59
Manyara	4,565	3,751	82	174,780	2.61
Mainland	237,821	166,295	70	7,731,350	3.08
Zanzibar	2,432	2,135	88	2,520	86.52
National	240,253	166,430	70	7,733,870	3.11

Table 11.5 : IRRIGATION: Number of Agriculture Households by Method of Field Application of Irrigation Water and Region

Region	Source of Irrigation Water								Total
	River	Lake	Dam	Well	Borehole	Canal	Pipe water		
Dodoma	2,730	98	417	4,533	129	1,182	369	9,438	
Arusha	12,044	0	0	119	0	11,121	197	23,481	
Kilimanja	18,029	125	1,323	959	43	27,206	1,024	48,710	
Tanga	10,052	0	774	1,965	113	10,176	258	23,338	
Morogoro	12,136	105	0	3,313	12	5,824	502	21,893	
Pwani	1,871	0	374	2,132	158	432	342	5,309	
Dar es Sa	672	13	184	707	129	43	230	1,977	
Lindi	1,589	81	28	923	0	301	0	2,902	
Mwara	2,424	0	637	791	0	81	94	4,027	
Ruvuma	15,798	234	690	1,648	72	5,744	406	24,560	
Iringa	29,977	96	1,181	10,928	362	13,392	132	56,066	
Mbeya	33,543	0	298	2,595	0	13,112	362	49,911	
Singida	258	0	555	1,865	0	3,701	0	6,380	
Tabora	1,196	0	7,418	7,054	654	899	0	17,181	
Rukwa	11,225	148	344	3,137	435	1,593	0	18,883	
Kigoma	13,917	751	193	1,321	197	1,038	0	17,417	
Shinyanga	3,501	0	1,855	1,485	23	1,828	85	8,578	
Kagera	5,181	844	896	2,038	0	4,634	381	13,757	
Mwanza	3,081	2,443	1,701	4,951	55	2,317	78	14,825	
Mara	2,007	1,250	281	2,151	0	191	0	5,879	
Manyara	4,578	0	118	376	321	1,120	60	6,574	
Mainland	185,789	5,988	19,039	54,991	2,704	105,676	4,520	378,687	
%	49	2	5	15	1	28	1	100	
Zanzibar	1,659	223	0	1,873	768	188	1,835	6,525	
National	187,428	6,211	19,039	56,864	3,471	106,844	6,355	385,213	

Table 11.6 IRRIGATION: Number of Agriculture Households by method used to obtain water and region during 2002/03 agriculture year

Regions	Method of Obtaining Water					Total
	Gravity	Hand Bucket	Hand Pump	Motor Pump	Other	
Dodoma	3,409	5,784	144	101	0	9,438
Arusha	22,807	557	0	117	0	23,481
Kilimanja	45,540	2,988	71	67	38	48,710
Tanga	12,883	10,123	84	38	212	23,338
Morogoro	13,136	7,039	131	710	77	21,093
Pwani	238	4,251	252	259	299	5,309
Dar es Sa	129	1,830	13	152	53	1,977
Lindi	1,187	1,530	0	137	88	2,902
Mwara	2,104	1,828	0	0	94	4,027
Ruvuma	10,137	14,040	0	250	132	24,560
Iringa	26,106	27,380	553	354	1,878	56,066
Mbeya	38,547	10,420	358	384	202	49,911
Singida	3,977	2,259	0	143	0	6,380
Tabora	4,987	11,828	46	26	293	17,181
Rukwa	11,028	4,974	133	146	602	18,883
Kigoma	8,881	8,736	0	0	0	17,417
Shinyanga	3,427	4,783	211	23	134	8,578
Kagera	6,512	6,991	132	0	122	13,757
Mwanza	3,817	9,795	857	157	0	14,825
Mara	392	4,839	124	115	420	5,879
Manyara	4,914	1,824	0	36	0	6,574
Mainland	223,936	143,998	3,118	3,213	4,424	378,687
%	89.1	38.0	0.8	0.8	1.2	100.0
Zanzibar	1,253	4,357	182	631	102	6,525
National	225,189	148,353	3,300	3,844	4,527	385,213

Table 11.7 : IRRIGATION: Number of Agriculture Households by Method of Field Application of Irrigation Water and Region

Regions	Method of Field Application				Total
	Flood	Sprinkler	Water Hose	Bucket / Watering Can	
Dodoma	3,083	502	144	5,729	9,438
Arusha	22,713	152	0	616	23,481
Kilimanja	45,160	249	492	2,609	48,710
Tanga	12,006	521	222	10,588	23,338
Morogoro	10,258	250	467	10,717	21,893
Pwani	913	98	104	4,195	5,309
Dar es Sa	46	78	219	1,636	1,977
Lindi	1,167	69	0	1,667	2,902
Mtwara	2,104	0	94	1,628	4,027
Ruvuma	7,419	1,245	205	15,891	24,580
Iringa	23,797	1,246	985	30,040	56,068
Mbeya	37,693	359	397	11,462	49,911
Singida	4,534	0	0	1,645	6,380
Tabora	5,828	334	99	10,621	17,181
Rukwa	11,381	143	248	5,111	16,883
Kigoma	7,442	197	160	9,618	17,417
Shinyanga	3,635	63	202	4,678	8,578
Kagera	6,018	281	0	7,460	13,757
Mwanza	3,745	540	725	9,615	14,625
Mara	612	68	124	5,075	5,679
Manyara	4,650	0	0	1,624	6,574
Mainland	214,583	6,393	4,887	152,825	378,687
%	57	2	1	40	100
Zanzibar	1,540	317	557	4,111	6,525
National	216,124	6,710	5,443	156,936	385,213

ACCESS TO FARM INPUTS & IMPLEMENTS

12.1 ACCESS TO INPUTS: Number of Crop growing households using compost by region during 2002/03 agriculture year

Region	Using Compost		Not using Compost		Total number of households
	No of households	%	No of households	%	
Arusha	3,007	2	135,471	98	138,479
Dar es Salaam	3,393	18	15,871	82	19,264
Dodoma	4,523	1	318,589	99	323,112
Iringa	23,221	8	255,496	92	278,717
Kagera	47,193	13	302,407	87	349,600
Kigome	16,039	8	178,655	92	194,695
Kilimanjaro	15,912	7	198,275	93	214,187
Lindi	3,492	2	149,523	98	153,015
Manyara	3,434	2	146,843	98	150,278
Mara	6,718	4	179,075	96	185,791
Mbeya	56,324	15	315,326	85	371,650
Morogoro	7,421	3	251,825	97	259,246
Mtwara	5,038	2	224,164	98	229,202
Mwanza	12,896	4	326,033	96	338,929
Pwani	11,417	8	128,027	92	139,444
Rukwa	3,298	2	168,547	98	171,845
Ruvuma	6,305	3	184,738	97	191,043
Shinyanga	14,316	4	361,231	96	375,547
Singida	7,788	4	171,613	96	179,400
Tabora	15,368	7	220,253	93	235,621
Tanga	14,580	6	248,948	94	263,528
Total	281,678	6	4,480,911	94	4,762,589

12.2 ACCESS TO INPUTS: Number of Crop Growing households using Improved seeds by region during 2002/03 agriculture year

Region	Using Improved Seed		Not using Improved Seed		Total number of households
	No of households	%	No of households	%	
Dodoma	34,114	11	288,998	89	323,112
Arusha	35,543	28	102,935	74	138,479
Kilimanjaro	108,843	51	105,344	49	214,187
Tanga	33,500	13	230,028	87	263,528
Morogoro	38,884	15	220,562	85	259,246
Pwani	21,121	15	118,323	85	139,444
Dar es Salaam	10,915	57	8,348	43	19,264
Lindi	12,591	8	140,424	92	153,015
Mtwara	8,531	4	220,671	96	229,202
Ruvuma	26,848	14	184,397	86	191,043
Iringa	49,920	18	228,797	82	278,717
Mbeya	52,255	14	319,394	86	371,650
Singida	26,415	15	152,985	85	179,400
Tabora	45,706	19	189,914	81	235,621
Rukwa	9,018	5	162,828	95	171,845
Kigome	13,963	7	180,731	93	194,695
Shinyanga	118,404	32	257,143	88	375,547
Kagera	40,133	11	309,467	89	349,600
Mwanza	127,982	38	210,948	82	338,929
Mara	42,530	23	143,261	77	185,791
Manyara	20,492	14	129,785	86	150,278
Total	877,308	19	3,885,281	82	4,762,589

12.3 ACCESS TO INPUTS: Number of Crop Growing households using Chemical Fertilizer by Region during 2002/03 agriculture year

Region	Using chemical fertilizer		Not using chemical fertilizer		Total number of households
	No of households	%	No of households	%	
Dodoma	2,296	1	320,816	99	323,112
Arusha	18,720	14	119,758	86	138,479
Kilimanjaro	74,551	35	139,636	65	214,187
Tanga	8,223	3	256,304	97	263,528
Morogoro	17,374	7	241,872	93	259,246
Pwani	3,801	3	136,642	97	139,444
Dar es Salaam	2,480	13	16,784	87	19,264
Lindi	1,591	1	151,424	99	153,015
Mtwara	7,333	3	221,869	97	229,202
Ruvuma	91,930	48	99,113	52	191,043
Iringa	101,518	36	177,199	64	278,717
Mbeya	120,352	32	251,298	68	371,650
Singida	2,659	1	176,741	99	179,400
Tabora	46,287	20	189,334	80	235,621
Rukwa	11,103	6	160,742	94	171,845
Kgombe	14,614	8	180,081	92	194,695
Shinyanga	10,730	3	364,817	97	375,547
Kagera	4,031	1	345,568	99	349,600
Mwanza	9,480	3	329,468	97	338,929
Mara	2,932	2	182,859	98	185,791
Manyara	969	1	149,309	99	150,278
Total	552,953	12	4,209,636	88	4,762,589

12.4 ACCESS TO INPUTS: Number of Crop Growing Households using Farm Yard Manure by Region during 2002/03 agriculture year

Region	Using Farm Yard Manure		Not using Farm Yard Manure		Total number of households
	No of households	%	No of households	%	
Dodoma	96,637	30	226,275	70	323,112
Arusha	61,031	44	77,448	56	138,479
Kilimanjaro	159,780	75	54,407	25	214,187
Tanga	51,612	20	211,716	80	263,528
Morogoro	14,937	6	244,309	94	259,246
Pwani	9,311	7	130,133	93	139,444
Dar es Salaam	5,958	31	13,306	69	19,264
Lindi	2,865	2	150,150	98	153,015
Mtwara	11,334	5	217,868	95	229,202
Ruvuma	61,064	32	129,979	68	191,043
Iringa	92,023	33	186,694	67	278,717
Mbeya	107,580	29	264,070	71	371,650
Singida	63,259	48	96,141	54	179,400
Tabora	65,279	28	170,342	72	235,621
Rukwa	19,966	12	151,879	88	171,845
Kgombe	41,045	21	153,649	79	194,695
Shinyanga	88,413	24	287,134	76	375,547
Kagera	72,527	21	277,073	79	349,600
Mwanza	103,260	30	235,669	70	338,929
Mara	48,514	26	137,277	74	185,791
Manyara	58,519	39	91,759	61	150,278
Total	1,255,312	26	3,507,276	74	4,762,589

12.5 ACCESS TO INPUTS: Number of agriculture households using pesticide/fungicide by region during 2002/03 agriculture year

Region	Using pesticide/fungicide		Not using pesticide/fungicide		Total number of households
	No of households	%	No of households	%	
Dodoma	8,951	3	314,160	97	323,112
Arusha	26,246	19	112,232	81	138,479
Kilimanjaro	65,983	31	148,203	69	214,187
Tanga	13,971	5	249,557	95	263,528
Morogoro	20,823	8	238,423	92	259,246
Pwani	17,019	12	122,424	88	139,444
Dar es Salaam	3,304	17	15,959	83	19,264
Lindi	26,131	17	128,883	83	153,015
Mtwara	52,961	23	176,241	77	229,202
Ruvuma	65,929	35	125,114	65	191,043
Iringa	144,605	52	134,112	48	278,717
Mbeya	63,646	17	308,003	83	371,650
Singida	6,912	4	172,488	96	179,400
Tabora	47,859	20	187,761	80	235,621
Rukwa	19,503	11	152,342	89	171,845
Kigoma	13,513	7	181,181	93	194,695
Shinyanga	81,034	22	294,514	78	375,547
Kagera	27,881	8	321,719	92	349,600
Mwanza	57,260	17	281,668	83	338,929
Mara	21,587	12	164,204	88	185,791
Manyara	9,252	6	141,025	94	150,278
Total	794,372	17	3,988,217	83	4,782,589

12.6 ACCESS TO INPUTS: Number of agriculture households using herbicide by region during 2002/03 agriculture year

Region	Using herbicide		Not using herbicide		Total number of households
	No of households	%	No of households	%	
Dodoma	415	0	322,697	100	323,112
Arusha	5,773	4	132,706	96	138,479
Kilimanjaro	7,516	4	206,671	96	214,187
Tanga	835	0	262,692	100	263,528
Morogoro	20,987	8	238,259	92	259,246
Pwani	326	0	139,118	100	139,444
Dar es Salaam	156	1	19,108	98	19,264
Lindi	57	0	152,958	100	153,015
Mtwara	189	0	229,013	100	229,202
Ruvuma	2,011	1	189,032	98	191,043
Iringa	3,548	1	275,169	99	278,717
Mbeya	27,006	7	344,644	93	371,650
Singida	117	0	179,283	100	179,400
Tabora	2,056	1	233,565	99	235,621
Rukwa	269	0	171,576	100	171,845
Kigoma	149	0	194,546	100	194,695
Shinyanga	1,188	0	374,359	100	375,547
Kagera	651	0	348,949	100	349,600
Mwanza	1,054	0	337,875	100	338,929
Mara	207	0	185,584	100	185,791
Manyara	1,691	1	148,587	99	150,278
Total	76,201	2	4,886,388	98	4,782,589

12.7 ACCESS TO INPUTS: Number of Crop Growing Households using inputs by Sources of Inputs and Region during 2002/03 agriculture year

Region	Source of Inputs									
	Co-operative	Local Farmers Group	Local Market / Trade Store	Secondary Market	Development Project	Crop Buyers	Large Scale Farm	Locally Produced by Household	Neighbour	Other
Dodoma	813	1,062	22,426	1,005	7,841	569	947	36,884	63,117	1,097
Arusha	1,264	1,162	45,483	167	124	62	2,072	54,199	9,189	461
Kilimanjaro	17,568	5,842	123,348	844	1,263	1,122	1,429	140,686	18,676	3,079
Tanga	615	203	32,411	325	2,485	204	504	45,659	24,583	448
Morogoro	1,230	965	48,711	1,380	1,934	2,475	1,684	14,817	22,574	847
Pwani	3,865	5,544	22,689	157	1,528	786	1,107	13,335	7,753	607
Dar es Salaam	753	415	10,816	333	128	227	792	4,593	3,001	105
Lindi	5,949	1,198	22,565	97	182	965	231	11,981	9,252	1,462
Mtwara	18,074	3,004	38,048	265	618	267	636	19,385	23,080	1,776
Ruvuma	29,938	11,621	89,642	673	533	3,080	1,163	57,294	19,021	770
Iringa	4,022	3,123	153,495	5,602	1,173	4,277	2,457	94,012	34,434	935
Mbeya	7,143	6,892	133,659	3,375	1,377	4,505	2,197	102,467	44,224	1,716
Shigda	3,279	404	17,950	636	790	1,078	1,806	62,119	28,111	1,157
Tabora	38,186	3,940	33,341	1,048	1,216	2,417	925	56,155	18,289	1,893
Rukwa	3,231	871	20,529	784	128	1,416	241	15,345	9,614	157
Kigoma	4,531	675	18,969	153	133	415	197	43,131	6,272	488
Shinyanga	59,330	5,765	67,709	3,994	2,927	27,477	82	79,705	35,955	2,330
Kagera	6,287	3,845	27,679	140	1,560	3,185	2,483	66,770	23,686	581
Mwanza	30,853	3,318	74,812	967	2,907	30,841	1,384	67,311	47,445	1,058
Mara	6,572	1,854	26,503	994	962	11,491	148	29,185	27,003	335
Manyara	763	297	23,585	633	502	603	1,672	49,718	15,524	0
Mtandao	244,047	61,638	1,054,346	23,575	30,331	97,245	24,339	1,086,700	489,926	21,304
Zanzibar										
National										

12.8 ACCESS TO INPUTS: Number of Crop Growing Households using Inputs by Source of Finance Source of Finance and Region during the 2002/03 agriculture year

Region	Source of finance for inputs					
	Sale of Farm Products	Other Income generating activities	Remittances	Bank Loan	Produced on form	Other
Dodoma	73,090	18,964	8,461	2,719	1,465	18,008
Arusha	58,691	19,341	2,048	1,165	1,591	10,038
Kilimanjaro	136,550	52,758	13,675	1,151	15,707	20,082
Tanga	62,904	14,608	9,319	795	540	3,910
Morogoro	54,410	18,654	4,702	741	250	4,235
Pwani	29,131	13,057	3,644	567	557	3,079
Dar es Salaam	8,884	5,400	882	219	42	1,239
Lindi	34,572	9,191	2,393	285	0	2,331
Mtwara	69,389	13,819	2,703	627	257	5,728
Ruvuma	114,784	28,616	7,751	610	7,148	7,053
Iringa	144,108	69,322	15,083	1,045	2,255	20,978
Mbeya	181,481	37,119	8,083	2,522	5,659	18,218
Singida	64,717	22,089	4,680	363	1,577	15,646
Tabora	92,686	26,716	4,710	5,505	223	12,299
Rukwa	32,462	6,284	3,387	671	0	5,189
Kgombe	48,950	9,401	1,392	383	591	3,801
Shinyanga	171,296	32,936	3,895	1,802	198	15,808
Kagera	109,019	17,881	4,399	195	1,101	7,671
Mwanza	135,359	43,112	9,820	954	3,446	18,851
Mani	62,236	11,662	4,933	90	478	5,942
Manyara	59,197	10,428	799	351	1,805	8,014
Total	1,743,855	481,558	118,561	22,751	44,891	204,118

12.9 ACCESS TO IMPLEMENTS: Number of Crop Growing households that Used Farm Implements/Assets by type of Implement and Region during 2002/03 agriculture year

Region	Use Of Implements									
	Hand Hoe	Hand Powered Sprayer	Oxen	Ox Plough	Ox Seed Planter	Ox Cart	Tractor	Tractor Plough	Tractor Harrow	Thrashers / Shellers
Dodoma	320,764	6,794	58,768	52,820	758	14,738	8,834	6,639	555	4,945
Arusha	136,533	52,825	77,240	76,734	325	11,324	13,322	12,538	2,437	2,001
Kilimanjaro	214,219	78,794	11,632	10,340	561	1,207	37,162	31,466	1,704	39,694
Tanga	262,510	17,676	654	498	0	353	2,105	1,894	1,014	82
Morogoro	259,304	36,943	5,781	5,978	0	6,338	30,348	30,100	5,888	247
Pwani	139,242	8,958	45	204	204	262	835	843	680	140
Dar es Salaam	18,818	2,868	274	83	25	4	198	195	23	0
Lindi	152,344	6,876	0	184	0	0	305	242	0	0
Mtwara	227,452	23,140	0	0	0	0	1,005	898	0	0
Ruvuma	180,884	61,838	1,351	103	27	55	303	74	0	8,178
Inga	277,558	57,803	88,488	83,978	2,165	10,674	5,205	1,854	486	455
Mbeya	370,124	87,323	106,868	103,254	438	15,866	2,788	2,431	845	8,853
Singida	176,728	6,479	90,940	85,816	628	14,918	408	545	208	79
Tabora	234,698	14,582	90,574	88,708	1,787	24,876	1,834	454	211	0
Rukwa	171,568	7,674	78,223	78,388	478	7,578	78	205	161	0
Kigoma	184,746	15,167	671	733	153	326	0	0	0	2,388
Shinyanga	374,937	74,084	248,732	238,752	968	68,324	5,553	5,421	524	238
Kagera	347,253	19,797	5,388	5,088	0	891	477	0	0	0
Mwanza	337,834	58,822	96,674	94,684	488	18,866	666	231	128	237
Mara	186,878	23,073	91,024	92,588	65	1,774	763	466	77	283
Manyara	149,127	21,029	88,628	85,018	1,588	34,202	19,662	18,900	728	4,024
Total	4,747,642	686,270	1,144,098	1,103,764	10,717	232,058	132,098	112,216	18,770	71,872

12.10 ACCESS TO IMPLEMENTS: Number of implements Owned by type of implement and Region in 2002/03 agriculture year

Region	Type of farm implement Owned										
	Hand Hic	Hand Powered Sprayer	Oxen	Ox Plough	Ox Seed Planter	Ox Cart	Tractor	Tractor Plough	Tractor Harrow	Thrashers / Shellers	
Dodoma	963,177	14,167	110,930	37,697	1,110	6,493	4,219	2,218	1,441	1,602	
Arusha	406,842	36,569	129,076	42,876		5,368	1,699	2,162	240	726	
Kilimanjaro	711,361	55,069	17,918	6,906	220	398	5,013	3,733	123	24,825	
Tanga	804,403	10,579	738	296		206	19	19	19	84	
Morogoro	659,905	15,324	26,660	6,694		3,724	1,427	580	1,485	131	
Pwani	439,133	5,351	92		204	406					
Chuo Kuu	58,021	1,708	302	64	25	9	62	29			
Lindi	513,247	1,467		96							
Mtwara	803,870	6,805									
Ruvuma	686,535	36,516	1,054	130	27	27	100			2,816	
Ifinga	935,704	36,921	106,122	50,726	1,976	3,714	1,167	1,160	228	96	
Mbeya	1,124,353	49,351	122,464	57,434	767	5,386	403	632	113	4,958	
Singida	587,519	10,506	203,863	57,565	546	9,647	138		245		
Tabora	1,038,061	12,517	257,367	79,777	789	19,005	434				
Rukwa	633,720	4,675	119,899	53,360	2,159	3,356		693	321		
Kigoma	614,541	14,415	5,071	1,930		658				1,119	
Shinyanga	1,538,653	38,021	636,727	185,661	731	35,973	872	567	772		
Kagera	1,078,373	17,600	13,787	3,824		279	295				
Mwanza	1,493,920	24,436	270,438	63,556	1,163	9,395	232	99	256	104	
Mara	705,661	12,665	190,895	59,540		955					
Manyanza	510,403	13,934	160,722	51,175	1,469	16,482	2,627	2,327	659	174	
Total	16,487,022	418,416	2,379,183	739,249	11,108	123,392	16,694	14,219	5,905	36,436	

12.11 ACCESS TO FARM INPUTS: Number of Agriculture Households reporting the main Reason for Not Using Inputs and Region during 2002/03 agriculture year

Region	Main reason of not using inputs							
	Not Available	Price Too High	No Money to Buy	Too Much Labour Required	Do not Know How to Use	Input is of No Use	Locally Produced by Household	Other
Dodoma	161,868	287,442	153,931	31,668	100,544	95,306	5,357	22,385
Arusha	34,258	129,010	69,885	17,036	47,818	42,908	1,199	12,944
Kilimanjaro	45,901	181,669	97,063	10,245	51,134	87,966	845	19,727
Tanga	64,457	240,205	150,428	27,349	63,265	72,247	1,437	10,991
Morogoro	163,332	214,056	110,346	14,373	83,923	64,131	1,333	19,235
Pwani	69,286	118,656	49,825	8,345	54,071	34,059	1,401	7,707
Dar es Salaam	6,371	16,464	7,409	995	6,344	4,629	61	3,479
Lindi	114,194	108,994	43,597	9,416	58,884	43,649	644	7,159
Mtwara	136,366	195,748	107,619	19,451	76,225	26,266	280	29,479
Ruvuma	96,156	171,270	96,200	4,467	65,734	40,761	2,048	21,093
Iringa	130,940	246,278	149,124	21,524	65,851	85,567	3,197	15,035
Mbeya	193,431	315,877	153,248	33,166	101,245	86,040	2,065	36,589
Singida	112,714	159,683	68,330	12,859	75,322	50,206	1,768	11,297
Tabora	159,348	199,820	110,948	12,117	99,795	42,296	2,408	29,245
Rukwa	92,225	145,790	79,272	21,200	73,499	35,420	1,553	13,101
Kigoma	107,587	166,250	118,572	14,905	20,101	15,232	733	7,405
Shinyanga	216,894	338,984	206,741	46,365	150,219	63,331	1,886	37,860
Kagera	208,272	290,897	157,671	20,374	100,635	91,923	4,797	19,932
Mwanza	186,827	298,050	189,398	37,474	131,726	54,352	1,711	36,026
Mara	110,287	158,251	109,103	16,313	52,511	37,507	1,068	26,374
Manyara	66,389	132,228	64,552	9,727	52,133	54,832	1,545	18,312
Total	2,515,090	4,135,622	2,283,564	389,433	1,530,981	1,128,550	37,408	405,344

12.12 ACCESS TO FARM INPUTS: Number of Agriculture Households reporting the quality of Inputs and Region during 2002/03 agriculture year

Region	Quality of Inputs				
	Excellent	Good	Average	Poor	Does not Work
Dodoma	42,097	71,823	8,816	1,349	458
Arusha	31,937	51,940	12,059	513	112
Kilimanjaro	94,785	127,029	23,556	887	240
Tanga	19,693	58,962	14,343	653	106
Morogoro	26,556	51,941	7,797	1,633	130
Pwani	15,658	25,873	9,455	901	514
Dar es Salaam	4,220	10,995	1,593	214	17
Lindi	11,047	27,428	12,042	955	446
Mtwara	23,142	57,964	14,560	664	265
Ruvuma	50,612	102,776	23,096	4,341	105
Iringa	73,903	157,667	32,408	4,060	960
Mbeya	63,484	154,671	26,577	3,740	106
Singida	43,065	60,629	8,350	701	0
Tabora	61,336	74,055	13,633	1,753	191
Rukwa	13,458	32,274	3,306	421	0
Kigoma	17,679	39,913	11,295	546	0
Shinyanga	73,605	135,283	33,728	7,795	790
Kagera	45,331	82,206	18,940	772	0
Mwanza	62,535	124,435	27,182	4,897	90
Mara	27,243	52,644	10,642	566	278
Manyara	23,358	45,316	12,550	481	125
Total	845,145	1,546,124	325,930	37,845	4,931

Table 12.19 ACCESS TO INPUTS: Number of Agricultural Households by Distance to Source of Chemical Fertilizer and Region, 2002/03 Agricultural Year

Region	Distance to Source of Chemical Fertilizer										Total Number
	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		
	Number	%	Number	%	Number	%	Number	%	Number	%	
Dodoma	758	33	141	6	382	17	144	6	871	38	2,295
Arusha	3,661	20	2,531	14	8,821	47	1,655	9	2,052	11	18,720
Kilimanjaro	19,818	27	17,993	24	22,489	30	11,806	16	2,444	3	74,651
Tanga	1,587	19	2,392	29	3,201	39	302	4	741	9	8,223
Morogoro	3,896	22	3,596	21	5,721	33	2,358	14	1,803	10	17,374
Pwani	603	16	281	7	614	16	662	17	1,541	43	3,801
Dar es Salaam	209	8	158	6	702	28	507	20	604	36	2,480
Lindi	355	22	93	6	618	39	55	4	469	29	1,591
Mtwara	1,209	16	378	5	1,968	27	1,733	24	2,044	28	7,333
Ruvuma	22,065	24	9,794	11	16,509	18	16,145	20	25,416	28	91,930
Iringa	18,144	18	18,454	18	19,993	20	15,307	15	29,619	29	101,518
Mbeya	19,189	16	16,904	14	34,965	29	22,193	18	27,101	23	120,352
Singida	1,940	73	225	8	143	5	268	10	82	3	2,699
Tabora	14,107	30	9,704	21	10,124	22	7,279	16	5,073	11	46,287
Rukwa	1,008	9	1,576	14	3,094	28	3,195	29	2,230	20	11,103
Kigoma	3,094	21	2,255	15	3,612	25	1,636	11	4,017	27	14,614
Shinyanga	4,158	39	2,274	21	1,959	18	1,216	11	1,121	10	10,730
Kagera	1,027	25	1,241	31	1,469	35	148	4	148	4	4,031
Mwanza	1,038	11	1,663	21	2,669	28	1,776	19	2,012	21	9,460
Mara	313	11	400	14	444	15	1,142	39	632	22	2,932
Manyara	155	16	18	2	0	0	0	0	796	83	969
Mainland	118,335	21	92,371	17	139,497	25	91,532	17	111,217	20	552,953
Zanzibar	1,671	18	1,770	17	4,321	42	1,884	18	615	6	10,281
National	120,006	21	94,141	17	143,818	26	93,417	17	111,832	20	563,234

Table 12.20 ACCESS TO INPUTS: Number of Agricultural Households by Distance to Source of Farm Yard Manure and Region, 2002/03 Agricultural Year

Region	Source of Farm Yard Manure										Total Number
	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		
	Number	%	Number	%	Number	%	Number	%	Number	%	
Dodoma	80,988	90	6,640	7	2,645	3	194	0	370	0	96,837
Arusha	50,919	93	2,632	4	927	2	512	1	141	0	61,031
Kilimanjaro	149,824	94	4,827	3	3,667	2	857	1	605	0	159,780
Tanga	47,492	92	3,668	7	498	1	153	0	0	0	51,612
Morogoro	12,099	61	1,615	10	760	5	433	3	131	1	14,937
Pwani	6,319	68	1,908	20	492	5	411	4	181	2	9,311
Dar es Salaam	3,644	61	1,270	21	590	10	274	5	179	3	5,958
Lindi	2,444	66	68	3	233	8	0	0	100	3	2,965
Mtwara	10,725	95	95	1	169	1	162	1	193	2	11,334
Ruvuma	57,846	94	1,266	2	1,139	2	882	1	132	0	61,064
Iringa	81,013	68	6,924	8	2,247	2	814	1	1,224	1	92,023
Mbeya	99,499	93	3,804	4	3,408	3	693	1	158	0	107,483
Singida	75,763	91	6,367	8	367	0	762	1	0	0	83,269
Tabora	62,850	96	1,904	3	270	0	179	0	275	0	65,279
Rukwa	16,283	77	2,838	14	1,632	8	0	0	213	1	19,966
Kigoma	37,584	92	2,437	6	625	2	266	1	133	0	41,045
Shinyanga	77,998	88	6,798	8	2,684	3	853	1	99	0	86,413
Kagera	64,585	89	6,382	9	1,169	2	0	0	390	1	72,527
Mwanza	90,166	67	10,805	10	1,649	2	568	1	273	0	103,260
Mara	41,597	68	6,380	11	1,009	2	629	1	0	0	48,614
Manyara	55,043	94	2,257	4	715	1	436	1	67	0	58,519
Mainland	1,135,380	90	79,504	6	26,866	2	6,630	1	4,764	0	1,265,196
Zanzibar	15,277	66	1,642	9	557	3	70	0	281	2	17,826
National	1,150,657	90	81,146	6	27,424	2	6,700	1	5,045	0	1,273,022

Table 12.21 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of COMPOST Manure by Region, 2002/03 Agricultural Year

Region	Distance to Source of Compost										Total Number
	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		
	Number	%	Number	%	Number	%	Number	%	Number	%	
Dodoma	4,422	98	0	0	0	0	0	0	101	2	4,623
Arusha	2,856	96	0	0	0	0	162	6	0	0	3,007
Kilimanjaro	14,803	92	508	4	434	3	273	2	36	0	16,912
Tanga	14,259	98	321	2	0	0	0	0	0	0	14,680
Morogoro	6,932	93	249	3	119	2	0	0	121	2	7,421
Pwani	11,296	99	36	0	0	0	83	1	0	0	11,417
Dar es Salaam	3,351	96	42	1	0	0	0	0	0	0	3,393
Lindi	3,323	96	0	0	141	4	0	0	28	1	3,492
Mwara	4,575	91	306	7	98	2	0	0	0	0	6,038
Ruvuma	6,936	94	100	2	198	3	72	1	0	0	6,306
Iringa	20,572	89	1,606	7	689	2	410	2	63	0	23,221
Mbeya	54,291	96	493	1	943	2	176	0	421	1	60,324
Singida	7,020	90	515	7	0	0	245	3	0	0	7,780
Tabora	14,090	96	28	0	115	1	531	3	0	0	16,366
Rukwa	2,940	89	109	3	209	6	35	1	0	0	3,298
Kgombe	15,942	96	197	1	0	0	0	0	0	0	16,039
Shinyanga	13,104	92	1,212	8	0	0	0	0	0	0	14,316
Kagera	40,120	98	850	2	68	0	148	0	0	0	47,193
Mwanza	11,090	91	699	6	300	2	208	2	0	0	12,999
Mara	6,331	94	70	1	261	4	66	1	0	0	6,710
Manyara	3,380	98	75	2	0	0	0	0	0	0	3,434
Mainland	267,629	86	7,636	3	3,446	1	2,398	1	798	0	281,678
Zanzibar	5,065	92	367	7	58	1	0	0	8	0	5,486
National	272,694	86	7,803	3	3,501	1	2,398	1	777	0	287,184

Table 12.22 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of Insecticides by Region, 2002/03 Agricultural Year

Region	Distance to Source of Insecticides										Total Number
	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		
	Number	%	Number	%	Number	%	Number	%	Number	%	
Dodoma	585	7	302	4	1,827	18	431	5	5,947	68	8,951
Arusha	4,157	16	3,132	12	11,968	46	1,657	6	5,334	20	26,248
Kilimanjaro	18,204	25	20,917	32	19,009	30	5,973	9	3,221	5	65,983
Tanga	2,585	16	3,389	24	4,236	30	1,255	9	2,515	18	13,971
Morogoro	5,798	28	3,439	17	4,031	19	2,429	12	5,125	25	20,823
Pwani	4,357	26	2,660	16	4,131	24	1,336	8	4,517	27	17,019
Dar es Salaam	438	13	225	7	737	22	660	20	1,244	38	3,304
Lindi	5,222	20	3,008	12	6,525	25	5,919	23	5,457	21	26,131
Mwara	23,112	44	3,123	6	7,955	15	7,890	15	10,891	21	52,951
Ruvuma	21,812	33	10,198	15	3,981	15	12,255	19	12,184	18	65,329
Iringa	38,714	25	20,837	14	28,087	19	19,774	14	39,198	27	144,605
Mbeya	9,422	15	8,246	13	16,392	29	9,926	16	17,662	28	63,848
Singida	2,883	41	453	7	2,366	35	590	9	608	9	6,912
Tabora	13,028	27	10,081	21	11,103	23	7,071	15	6,576	14	47,859
Rukwa	3,313	17	2,332	12	4,134	21	2,675	14	7,050	38	19,503
Kgombe	2,631	19	2,353	17	3,629	27	1,198	9	3,702	27	13,513
Shinyanga	18,349	23	16,128	20	25,080	31	8,507	10	12,972	16	61,034
Kagera	8,317	30	5,757	21	7,514	27	3,788	14	2,504	9	27,881
Mwanza	15,754	26	16,007	29	12,681	22	8,138	11	6,020	11	57,290
Mara	4,317	20	6,058	28	5,486	25	3,427	16	2,285	11	21,587
Manyara	1,084	12	1,504	18	3,117	34	1,557	17	2,009	22	9,252
Mainland	199,821	26	140,885	18	192,156	24	104,454	13	167,016	20	794,372
Zanzibar	473	16	875	25	584	22	819	23	340	13	2,660
National	200,294	26	141,580	18	192,780	24	105,073	13	167,356	20	797,063

Table 12.23 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of Herbicides by Region, 2002/03 Agricultural Year

Region	Distance to Source of Herbicides										Total Number
	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		
	Number	%	Number	%	Number	%	Number	%	Number	%	
Dodoma	141	34	0	0	09	24	101	24	75	18	415
Arusha	453	8	650	11	2,726	47	1,067	18	876	15	5,773
Kilimanjaro	2,222	30	1,896	23	2,102	28	1,148	15	344	5	7,516
Tanga	732	88	0	0	0	0	103	12	0	0	835
Morogoro	5,580	27	3,111	15	5,851	28	2,786	13	3,650	17	20,987
Pwani	0	0	79	24	224	69	0	0	22	7	326
Dar es Salaam	0	0	0	0	0	0	85	55	71	45	156
Lindi	29	50	0	0	29	50	0	0	0	0	57
Mtwara	189	100	0	0	0	0	0	0	0	0	189
Ruvuma	875	34	0	0	474	24	526	26	337	17	2,011
Iringa	770	22	410	12	310	9	214	6	1,843	52	3,548
Mbeya	4,263	16	2,684	10	7,618	28	6,650	25	5,791	21	27,006
Singida	0	0	117	100	0	0	0	0	0	0	117
Tabora	718	35	519	25	519	25	198	10	102	5	2,056
Rukwa	0	0	269	100	0	0	0	0	0	0	269
Kigoma	0	0	0	0	0	0	0	0	149	100	149
Shinyanga	508	43	291	24	199	16	81	7	119	10	1,188
Kagera	147	23	149	23	167	26	0	0	198	29	651
Mwanza	139	13	293	28	85	8	219	21	317	30	1,054
Mara	207	100	0	0	0	0	0	0	0	0	207
Manyara	80	5	560	33	233	14	364	22	453	27	1,691
Mainland	16,854	22	10,832	14	20,625	27	13,551	18	14,338	19	75,201
Zanzibar	211	6	633	18	1,807	50	680	19	262	7	3,583
National	17,065	21	11,465	14	22,432	28	14,231	18	14,600	18	78,784

Table 12.24 ACCESS TO INPUTS: Number of Agricultural Households and Distance to Source of Improved Seed by Region, 2002/03 Agricultural Year

Region	Distance to Source of Improved Seed										Total Number
	Less than 1 km		Between 1 and 3 km		Between 3 and 10 km		Between 10 and 20 km		20 km and Above		
	Number	%	Number	%	Number	%	Number	%	Number	%	
Dodoma	9,351	27	2,925	9	7,513	22	2,076	6	12,248	36	34,114
Arusha	5,389	15	3,688	10	15,286	43	3,267	9	7,936	22	35,543
Kilimanjaro	26,830	25	28,914	27	34,357	32	13,749	13	5,117	5	108,968
Tanga	10,013	30	6,939	21	7,283	22	4,197	13	5,086	15	33,500
Morogoro	13,817	36	5,521	14	7,704	20	4,081	11	7,582	20	38,684
Pwani	4,035	19	2,480	12	3,700	18	2,170	10	8,757	41	21,121
Dar es Salaam	1,175	11	781	7	3,127	29	2,692	25	3,140	29	10,915
Lindi	6,010	48	740	6	2,319	18	1,203	10	2,319	18	12,591
Mtwara	5,072	59	308	4	910	11	489	6	1,753	21	8,531
Ruvuma	5,501	21	1,888	6	5,641	21	5,524	21	8,293	31	28,646
Iringa	21,277	43	4,280	9	5,678	11	4,550	9	14,135	28	49,920
Mbeya	9,908	19	8,163	16	13,166	25	7,106	14	13,910	27	52,255
Singida	12,076	46	2,607	10	5,041	19	2,566	10	4,126	16	28,415
Tabora	15,069	33	9,608	21	9,580	21	7,077	15	4,393	10	45,706
Rukwa	452	5	1,081	12	2,226	25	1,693	19	3,586	40	9,018
Kigoma	4,521	32	2,291	16	1,367	10	721	5	5,083	36	13,983
Shinyanga	41,182	35	28,718	24	31,030	26	8,474	7	9,000	8	118,404
Kagera	19,863	49	7,931	20	8,385	18	3,166	8	2,786	7	40,133
Mwanza	42,687	33	36,642	29	22,273	17	13,790	11	12,591	10	127,982
Mara	13,263	31	11,926	28	9,234	22	4,280	10	3,826	9	42,530
Manyara	5,040	25	2,752	13	3,309	16	4,174	20	5,216	25	20,492
Mainland	272,510	31	169,958	19	197,090	22	97,045	11	140,829	16	877,432
Zanzibar	10,877	50	3,907	18	4,292	20	1,581	7	1,178	5	21,833
National	283,387	32	173,865	19	201,382	22	98,626	11	142,005	16	899,265

Table 12.25 ACCESS TO INPUTS: Number of Agricultural Households and Quality of Chemical Fertilizer by Region, 2002/03 Agricultural Year

Region	Quality of Chemical Fertilizer										Total Number
	Excellent		Good		Average		Poor		Does not Work		
	Number	%	Number	%	Number	%	Number	%	Number	%	
Dodoma	571	25	1,184	52	540	24	0	0	0	0	2,295
Arusha	7,424	40	8,480	46	2,692	14	88	0	0	0	18,544
Kilimanjaro	26,897	36	41,411	56	5,791	8	256	0	197	0	74,561
Tanga	2,206	27	4,400	54	1,478	18	140	2	0	0	8,223
Morogoro	5,743	33	10,803	63	606	4	118	1	0	0	17,374
Pwani	1,410	37	2,041	54	250	7	100	3	0	0	3,801
Dar es Salaam	565	23	1,741	70	161	6	13	1	0	0	2,480
Lindi	700	44	771	48	120	8	0	0	0	0	1,591
Mtwara	2,286	31	4,386	60	652	9	0	0	0	0	7,333
Ruvuma	26,311	29	59,743	65	5,392	6	486	1	0	0	91,930
Iringa	23,036	23	67,199	66	9,804	10	778	1	696	1	101,518
Mbeya	31,348	26	76,206	63	10,709	9	2,090	2	0	0	120,352
Singida	584	22	1,756	66	319	12	0	0	0	0	2,659
Tabora	19,484	42	22,812	49	3,140	7	825	2	27	0	46,287
Rukwa	3,512	32	8,701	60	824	7	86	1	0	0	11,103
Kigoma	4,825	33	8,055	55	1,733	12	0	0	0	0	14,614
Shinyanga	4,631	42	5,595	52	604	6	0	0	0	0	10,730
Kagera	960	24	2,776	69	148	4	148	4	0	0	4,031
Mwanza	3,281	35	5,296	56	793	8	88	1	0	0	9,460
Mara	1,506	51	1,426	49	0	0	0	0	0	0	2,932
Manyara	75	8	635	66	258	27	0	0	0	0	968
Mainland	167,262	30	333,506	60	45,916	8	5,176	1	923	0	562,777
Zanzibar	3,154	31	5,778	56	1,224	12	65	1	40	0	10,261
National	170,406	30	339,287	60	47,141	8	5,241	1	963	0	563,036

12.26 ACCESS TO INPUTS: Number of Agricultural Households and Quality of Farm Yard Manure by Region, 2002/03 Agricultural Year

Region	Quality of Farm Yard Manure										Total Number
	Excellent		Good		Average		Poor		Does not Work		
	Number	%	Number	%	Number	%	Number	%	Number	%	
Dodoma	33,124	34	59,171	61	3,507	4	905	1	129	0	96,837
Arusha	22,306	37	33,009	54	5,602	9	0	0	112	0	61,031
Kilimanjaro	72,873	46	78,968	49	7,705	5	233	0	0	0	159,790
Tanga	11,140	21	35,593	66	5,375	10	29	0	0	0	52,137
Morogoro	6,235	42	7,905	53	797	5	0	0	0	0	14,937
Pwani	2,831	30	5,584	60	875	9	41	0	0	0	9,311
Dar es Salaam	1,328	22	4,261	72	369	6	0	0	0	0	5,958
Lindi	494	17	1,809	63	562	20	0	0	0	0	2,865
Mtwara	2,458	22	7,612	67	1,264	11	0	0	0	0	11,334
Ruvuma	20,888	34	34,629	57	5,420	9	127	0	0	0	61,064
Iringa	31,917	35	52,654	57	7,181	8	270	0	0	0	92,023
Mbeya	43,198	40	56,507	53	7,345	7	413	0	0	0	107,463
Singida	36,006	43	44,426	53	2,744	3	83	0	0	0	83,259
Tabora	30,398	47	30,480	47	4,299	7	102	0	0	0	65,279
Rukwa	7,233	36	11,627	56	999	5	107	1	0	0	19,966
Kigoma	11,244	27	22,585	55	7,237	18	0	0	0	0	41,045
Shinyanga	34,822	39	50,030	57	2,967	3	452	1	142	0	88,413
Kagera	29,378	41	39,885	55	3,164	4	0	0	0	0	72,527
Mwanza	39,563	38	56,449	55	7,093	7	0	0	0	0	103,105
Mara	18,888	39	26,892	55	2,935	6	0	0	0	0	48,514
Manyara	16,673	28	32,793	56	8,845	15	208	0	0	0	58,519
Mainland	473,000	36	892,726	55	86,284	7	2,971	0	384	0	1,255,387
Zanzibar	8,496	36	9,573	54	1,707	10	45	0	6	0	17,826
National	473,496	36	702,301	55	87,991	7	3,016	0	389	0	1,273,193

Table 12.27 ACCESS TO INPUTS: Number of Agricultural Households by Quality of COMPOST Manure and Region, 2002/03 Agricultural Year

Region	Quality of Compost Manure										Total Number
	Excellent		Good		Average		Poor		Does not Work		
	Number	%	Number	%	Number	%	Number	%	Number	%	
Dodoma	545	12	3,481	77	372	8	145	3	0	0	4,523
Aruaha	1,270	42	1,120	37	428	14	189	6	0	0	3,007
Kilimanjaro	4,566	29	10,204	64	1,142	7	0	0	0	0	15,912
Tanga	2,363	18	11,196	77	881	6	140	1	0	0	14,580
Morogoro	2,018	39	3,170	43	1,335	18	0	0	0	0	7,421
Pwani	3,806	33	4,406	39	2,857	26	160	1	82	1	11,417
Dar es Salaam	689	17	2,888	76	196	6	40	1	0	0	3,393
Lindi	1,598	46	1,451	42	443	13	0	0	0	0	3,492
Mwara	1,538	31	3,021	63	285	6	164	4	0	0	5,038
Ruvuma	1,197	19	3,878	58	1,430	23	0	0	0	0	6,305
Iringa	7,513	32	11,276	49	4,387	19	64	0	0	0	23,221
Mbeya	14,428	26	38,429	68	6,289	9	177	0	0	0	66,324
Singida	2,569	33	4,295	55	923	12	0	0	0	0	7,786
Tabora	3,686	23	9,127	59	2,748	18	27	0	0	0	15,368
Rukwa	35	1	2,702	82	434	13	128	4	0	0	3,268
Kigoma	2,888	17	10,817	67	2,369	15	164	1	0	0	16,039
Shinyanga	2,246	16	9,967	66	2,688	19	119	1	0	0	14,318
Kagera	11,803	25	27,727	59	7,853	17	0	0	0	0	47,183
Mwanza	2,033	16	9,214	71	1,991	12	148	1	0	0	12,886
Mara	2,737	41	3,227	48	751	11	0	0	0	0	6,718
Manyara	653	19	1,953	58	789	23	0	0	0	0	3,434
Mainland	70,339	25	170,459	61	39,097	14	1,702	1	82	0	281,678
Zanzibar	1,260	23	3,139	67	1,074	20	23	0	0	0	5,486
National	71,599	26	173,597	60	40,170	14	1,725	1	82	0	287,164

Table 12.28 ACCESS TO INPUTS: Number of Agricultural Households by Quality of Insecticides and Region, 2002/03 Agricultural Year

Region	Quality of Insecticides										Total Number
	Excellent		Good		Average		Poor		Does not Work		
	Number	%	Number	%	Number	%	Number	%	Number	%	
Dodoma	1,313	16	6,793	76	458	5	299	3	100	1	8,961
Aruaha	5,183	31	15,708	63	2,211	8	167	1	0	0	26,239
Kilimanjaro	16,098	24	42,509	64	6,051	10	389	1	126	0	65,063
Tanga	2,220	19	9,171	68	2,332	17	247	2	0	0	13,071
Morogoro	4,789	23	15,056	72	874	4	124	1	0	0	20,823
Pwani	4,424	26	9,516	58	2,289	13	634	3	258	2	17,019
Dar es Salaam	888	30	2,122	64	194	5	0	0	0	0	3,304
Lindi	4,602	18	15,442	59	5,029	19	682	3	377	1	26,131
Mwara	14,532	27	32,047	62	5,013	9	469	1	0	0	52,061
Ruvuma	12,081	19	45,778	69	6,444	10	941	1	106	0	65,929
Iringa	30,279	21	104,679	72	9,257	6	129	0	261	0	144,666
Mbeya	15,517	24	44,257	70	3,146	5	727	1	0	0	63,646
Singida	1,667	24	4,124	63	567	8	534	6	0	0	6,812
Tabora	17,183	38	28,345	59	1,739	4	562	1	50	0	47,850
Rukwa	5,236	27	13,116	67	1,150	6	0	0	0	0	19,503
Kigoma	2,936	22	8,894	68	1,434	11	260	2	0	0	13,513
Shinyanga	22,751	28	51,782	64	5,047	5	1,089	1	365	0	81,034
Kagera	6,816	32	18,085	54	3,381	12	589	2	0	0	27,881
Mwanza	13,885	24	38,676	64	6,354	11	456	1	60	0	57,260
Mara	4,440	21	14,242	68	2,134	10	493	2	278	1	21,587
Manyara	2,523	27	5,284	57	1,320	14	0	0	125	1	6,232
Mainland	184,823	26	521,518	69	67,223	8	6,730	1	2,131	0	794,426
Zanzibar	1,019	37	1,369	60	336	13	0	0	0	0	2,714
National	185,833	25	522,887	68	67,558	8	6,730	1	2,131	0	797,139

Table 12.29 ACCESS TO INPUTS: Number of Agricultural Households and Quality of Herbicides by Region, 2002/03 Agricultural Year

Region	Quality of Herbicides										Total Number
	Excellent		Good		Average		Poor		Does not Work		
	Number	%	Number	%	Number	%	Number	%	Number	%	
Dodoma	99	24	317	76	0	0	0	0	0	0	415
Arusha	1,848	32	3,248	56	677	12	0	0	0	0	5,773
Kilimanjaro	3,136	42	3,991	53	388	5	0	0	0	0	7,516
Tanga	0	0	835	100	0	0	0	0	0	0	835
Morogoro	4,519	22	15,071	72	1,268	6	129	1	0	0	20,987
Pwani	101	31	224	69	0	0	0	0	0	0	326
Dar es Salaam	0	0	142	91	14	9	0	0	0	0	156
Lindi	29	50	0	0	29	50	0	0	0	0	57
Mtwara	0	0	189	100	0	0	0	0	0	0	189
Ruvuma	520	26	1,231	61	260	13	0	0	0	0	2,011
Iringa	896	28	2,551	72	0	0	0	0	0	0	3,548
Mbeya	8,270	34	16,064	59	1,114	4	479	2	88	0	27,006
Singida	0	0	117	100	0	0	0	0	0	0	117
Tabora	769	37	1,238	60	50	2	0	0	0	0	2,056
Rukwa	269	100	0	0	0	0	0	0	0	0	269
Kigoma	149	100	0	0	0	0	0	0	0	0	149
Shinyanga	319	27	598	50	189	16	81	7	0	0	1,188
Kagera	503	77	147	23	0	0	0	0	0	0	651
Mwanza	176	17	573	54	305	28	0	0	0	0	1,054
Mara	117	57	90	43	0	0	0	0	0	0	207
Manyara	792	47	887	52	0	0	12	1	0	0	1,691
Mainland	23,612	31	47,515	62	4,294	6	692	1	88	0	76,201
Zanzibar	1,270	35	1,901	53	364	10	15	0	43	1	3,582
National	24,882	31	49,416	62	4,658	6	707	1	130	0	79,793

Table 12.30 ACCESS TO INPUTS: Number of Agricultural Households and Quality of Improved Seeds by Region, 2002/03 Agricultural Year

Region	Quality of Improved Seeds										Total Number
	Excellent		Good		Average		Poor		Does not Work		
	Number	%	Number	%	Number	%	Number	%	Number	%	
Dodoma	11,644	34	18,036	53	4,205	12	0	0	229	1	34,114
Arusha	12,214	34	20,981	59	2,349	7	0	0	0	0	35,543
Kilimanjaro	34,195	31	67,627	62	6,977	8	0	0	169	0	108,968
Tanga	6,925	20	23,389	69	3,188	9	237	1	108	0	33,825
Morogoro	14,600	38	22,073	57	2,011	5	0	0	0	0	38,684
Pwani	6,536	31	12,123	57	2,265	11	21	0	176	1	21,121
Dar es Salaam	2,694	25	7,273	67	770	7	161	1	17	0	10,915
Lindi	4,702	37	6,260	50	1,491	12	69	1	69	1	12,591
Mtwara	2,743	32	5,328	62	396	5	0	0	159	2	6,625
Ruvuma	6,695	25	18,673	70	1,118	4	159	1	0	0	26,646
Iringa	13,490	27	30,441	61	4,891	10	1,099	2	0	0	49,920
Mbeya	20,753	40	28,990	55	2,494	5	0	0	18	0	52,255
Singida	7,914	30	16,889	64	1,528	8	84	0	0	0	26,415
Tabora	19,603	43	23,123	51	2,601	8	265	1	114	0	45,706
Rukwa	1,665	18	7,079	78	155	2	120	1	0	0	9,018
Kigoma	3,853	28	9,548	68	442	3	121	1	0	0	13,963
Shinyanga	35,971	30	72,466	61	6,519	6	3,366	3	79	0	118,404
Kagera	6,675	17	26,234	65	7,188	18	35	0	0	0	40,133
Mwanza	28,562	22	77,691	61	17,358	14	4,372	3	0	0	127,982
Mara	8,251	19	28,467	67	5,738	13	75	0	0	0	42,530
Manyara	7,482	37	10,355	51	2,395	12	261	1	0	0	20,492
Mainland	257,167	29	533,027	61	76,078	9	10,445	1	1,136	0	877,852
Zanzibar	1,312	27	2,053	61	364	11	15	0	43	0	3,787
National	258,479	29	535,080	61	76,442	9	10,460	1	1,179	0	881,639

Table 12.31 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use Chemical Fertilizer Next Year by Region, 2002/03 Agricultural Year

Region	Plan to use Chemical Fertilizer Next Year				
	Number of Agricultural Households With Plan to use Next Year		Number of Agricultural Households With NO Plan to use Next Year		Total Number
	Number	%	Number	%	
Dodoma	15,973	8	307,747	90	323,719
Aruaha	29,415	19	125,443	81	154,857
Kilimanjaro	111,920	52	104,253	48	216,173
Tanga	35,860	13	229,538	87	265,398
Morogoro	47,307	18	213,439	82	260,746
Pwani	20,692	15	120,838	85	141,530
Der es Salaam	6,575	32	13,819	68	20,394
Lindi	13,225	9	139,949	91	153,173
Mtwara	39,833	17	199,481	83	229,314
Ruvuma	121,432	64	89,742	36	191,175
Iringa	126,798	45	151,919	55	278,717
Mbeya	177,401	48	196,444	52	372,844
Singida	7,090	4	172,835	96	179,915
Tabora	81,242	34	154,675	66	235,917
Rukwa	29,882	17	142,679	83	172,561
Kigoma	61,097	31	134,668	69	195,765
Shinyanga	63,462	17	314,395	83	377,857
Kagera	21,562	6	331,715	94	353,277
Mwanza	68,215	20	271,869	80	340,085
Mara	20,610	11	197,593	89	188,203
Manyara	4,290	3	149,904	97	154,194
Mainland	1,103,372	23	3,701,843	77	4,805,315
Zanzibar	49,449	51	47,028	49	96,522
National	1,152,821	24	3,748,870	78	4,901,697

Table 12.32 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use Farm Yard Manure next year by Region, 2002/03 Agricultural Year

Region	Plan to use Farm Yard Manure Next Year				
	Number of Agricultural Households With Plan to use Next Year		Number of Agricultural Households With NO Plan to use Next Year		Total Number
	Number	%	Number	%	
Dodoma	150,238	46	173,482	54	323,719
Aruaha	63,747	41	91,110	59	154,857
Kilimanjaro	170,820	79	45,353	21	216,173
Tanga	112,362	42	152,836	58	265,198
Morogoro	39,599	15	221,177	85	260,746
Pwani	28,591	20	112,939	80	141,530
Der es Salaam	10,837	53	9,457	47	20,394
Lindi	16,419	11	136,755	89	153,173
Mtwara	36,079	16	193,236	84	229,314
Ruvuma	72,361	38	118,814	62	191,175
Iringa	107,650	39	171,067	61	278,717
Mbeya	156,064	42	216,780	58	372,844
Singida	113,400	63	66,515	37	179,915
Tabora	116,720	49	119,197	51	235,917
Rukwa	36,102	21	136,159	79	172,261
Kigoma	91,795	47	103,970	53	195,765
Shinyanga	195,634	52	182,224	48	377,857
Kagera	127,891	36	225,386	64	353,277
Mwanza	208,324	61	131,760	39	340,085
Mara	110,213	59	77,990	41	188,203
Manyara	83,951	54	70,244	46	154,194
Mainland	2,048,894	43	2,756,430	57	4,805,315
Zanzibar	48,471	50	48,096	50	96,522
National	2,097,365	43	2,804,526	57	4,901,897

Table 12.33 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use COMPOST Next Year by Region, 2002/03 Agricultural Year

Region	Plan to use Compost Next Year				
	Number of Agricultural Households With Plan to use Next Year		Number of Agricultural Households With NO Plan to use Next		Total Number
	Number	%	Number	%	
Dodoma	37,190	11	298,529	89	323,719
Arusha	11,290	7	143,567	93	154,857
Kilimanjaro	35,085	16	181,068	84	216,173
Tanga	48,108	18	217,080	82	265,198
Morogoro	28,577	10	234,189	90	260,748
Pwani	27,528	19	114,001	81	141,530
Dar es Salaam	6,950	34	13,444	66	20,394
Udi	15,149	10	138,024	90	153,173
Mtwara	19,194	8	210,120	92	229,314
Ruvuma	13,832	7	177,349	93	191,179
Iringa	33,811	12	244,906	88	278,717
Mbeya	81,045	22	291,799	78	372,844
Singida	23,495	13	158,421	87	179,916
Tabora	36,338	15	199,581	85	235,917
Rukwa	7,958	5	164,302	95	172,261
Kgombe	58,283	30	137,473	70	195,756
Shinyanga	68,484	18	309,373	82	377,857
Kagera	91,074	26	262,203	74	353,277
Mwanza	59,888	18	280,187	82	340,085
Mara	25,982	14	182,221	86	188,203
Manyara	11,477	7	142,718	93	154,194
Mainland	738,755	15	4,066,560	85	4,805,315
Zanzibar	27,849	29	66,673	71	96,522
National	766,604	16	4,135,233	84	4,901,837

Table 12.34 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use Insecticides Next Year by Region, 2002/03 Agricultural Year

Region	Plan to use Insecticides Next Year				
	Number of Agricultural Households With Plan to use Next Year		Number of Agricultural Households With NO Plan to use Next		Total Number
	Number	%	Number	%	
Dodoma	36,023	11	287,697	89	323,719
Arusha	34,807	22	120,250	78	154,857
Kilimanjaro	110,947	51	105,226	49	216,173
Tanga	43,864	17	221,334	83	265,198
Morogoro	53,438	21	207,306	79	260,748
Pwani	42,349	30	99,180	70	141,530
Dar es Salaam	7,418	36	12,978	64	20,394
Udi	43,977	29	109,196	71	153,173
Mtwara	83,253	36	146,061	64	229,314
Ruvuma	77,237	40	113,938	60	191,179
Iringa	153,943	55	124,774	45	278,717
Mbeya	101,483	27	271,361	73	372,844
Singida	35,260	20	144,656	80	179,916
Tabora	69,814	42	138,103	56	235,917
Rukwa	32,762	19	139,499	81	172,261
Kgombe	40,488	21	155,298	79	195,786
Shinyanga	181,562	43	218,296	57	377,857
Kagera	48,815	14	304,462	86	353,277
Mwanza	117,042	34	223,043	66	340,085
Mara	46,090	24	142,113	78	188,203
Manyara	25,283	16	128,932	84	154,194
Mainland	1,365,613	29	3,406,702	71	4,805,315
Zanzibar	29,176	30	67,346	70	96,522
National	1,424,789	29	3,477,048	71	4,901,837

Table 12.35 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use Herbicides Next Year by Region, 2002/03 Agricultural Year

Region	Plan to use Herbicides Next Year				Total Number
	Number of Agricultural Households With Plan to use Next Year		Number of Agricultural Households With NO Plan to use Next		
	Number	%	Number	%	
Dodoma	14,901	5	306,819	95	323,719
Arusha	14,666	9	140,171	91	154,837
Kilimanjaro	27,719	13	188,454	87	216,173
Tanga	16,104	6	249,094	94	265,198
Morogoro	46,080	18	214,669	82	260,748
Pwani	13,482	10	128,047	90	141,530
Der es Saisam	2,882	13	17,712	87	20,594
Lindi	6,532	4	146,642	96	153,173
Mtwara	6,931	3	222,383	97	229,314
Ruvuma	7,403	4	183,772	98	191,175
Iringa	9,553	3	269,163	97	278,717
Mbeya	58,846	15	316,199	85	372,844
Singida	4,166	2	175,749	98	179,915
Tabora	17,829	8	216,088	92	233,917
Rukwa	3,549	2	168,712	98	172,261
Kigoma	17,279	9	178,485	91	195,765
Shinyanga	29,177	8	346,680	92	377,857
Kagera	7,015	2	346,262	98	353,277
Mwanza	20,805	9	319,280	94	340,085
Mara	11,041	6	177,162	94	188,203
Manyara	6,712	4	147,483	98	154,194
Mainland	340,292	7	4,468,023	93	4,808,315
Zanzibar	32,543	34	63,979	66	96,522
National	372,835	8	4,529,002	92	4,901,837

Table 12.36 ACCESS TO INPUTS: Number of Agricultural Households With Plan to use Improved Seeds Next Year by Region , 2002/03 Agricultural Year

Region	Plan to use Improved Seeds Next Year				Total Number
	Number of Agricultural Households With Plan to use Next Year		Number of Agricultural Households With NO Plan to use Next		
	Number	%	Number	%	
Dodoma	92,058	28	231,662	72	323,719
Arusha	53,451	35	101,409	65	154,857
Kilimanjaro	150,884	70	65,289	30	216,173
Tanga	100,788	38	164,410	62	265,198
Morogoro	95,818	37	165,128	63	260,748
Pwani	51,434	36	90,096	64	141,530
Der es Saisam	14,264	70	6,130	30	20,394
Lindi	48,834	33	103,339	67	153,173
Mtwara	50,957	22	178,457	78	229,314
Ruvuma	48,043	25	143,132	75	191,175
Iringa	72,433	28	206,283	74	278,717
Mbeya	134,372	36	238,473	64	372,844
Singida	68,057	38	111,859	62	179,915
Tabora	106,937	45	126,979	55	233,917
Rukwa	20,175	12	152,088	88	172,261
Kigoma	57,275	29	136,490	71	193,765
Shinyanga	198,881	53	177,977	47	377,857
Kagera	93,397	28	259,881	74	353,277
Mwanza	198,754	58	141,331	42	340,085
Mara	94,574	50	93,629	50	188,203
Manyara	54,376	35	99,818	65	154,194
Mainland	1,807,481	38	2,997,854	62	4,805,315
Zanzibar	58,289	60	38,233	40	96,522
National	1,865,750	38	3,036,087	62	4,901,837

12.37 ACCESS TO EQUIPMENT: Number of households NOT Using Hand Hoes by Main Reason for Not Using and Region for the 2002/03 agriculture year

Region	Hand Hoe					
	Not Available	Price Too High	No Money to Buy / Rent	Too Much Labour Required	Equipment / Asset of No Use	Other
Dodoma	247	2,172	469	0	0	0
Arusha	936	7,247	1,587	347	3,385	2,815
Kilimanjaro	0	1,005	462	0	147	391
Tanga	19	1,485	294	0	490	242
Morogoro	383	936	126	0	247	123
Pwani	162	338	551	318	460	280
Dar es Salaam	127	630	208	45	547	4
Lindi	139	519	0	0	0	0
Mtwara	0	794	971	0	97	0
Ruvuma	107	161	0	0	0	0
Idinga	61	348	508	0	0	0
Mbeya	0	599	1,401	0	176	121
Singida	137	240	565	0	123	0
Tabora	199	497	214	0	13	0
Ruwa	0	178	72	0	106	0
Kigoma	0	566	293	0	160	0
Shinyanga	238	1,210	527	0	557	176
Kagera	183	3,029	682	0	1,602	518
Mwanza	251	963	159	0	829	0
Mara	0	640	319	138	69	0
Manyara	145	2,699	905	0	489	575
Mainland	3,334	26,217	10,313	644	9,477	5,245

12.38 ACCESS TO EQUIPMENT: Number of agriculture households NOT Using Hand Powered Sprayers by Main Reason for Not Using and Region for the 2002/03 agriculture year

Region	Hand Powered Sprayer					
	Not Available	Price Too High	No Money to Buy / Rent	Too Much Labour Required	Equipment / Asset of No Use	Other
Dodoma	80,416	131,445	84,673	117	35,609	2,993
Arusha	5,578	52,617	19,265	518	20,334	3,911
Kilimanjaro	6,010	68,680	33,096	80	30,277	1,720
Tanga	21,431	123,848	68,371	59	35,155	704
Morogoro	39,685	108,529	47,280	278	27,189	1,234
Pwani	30,601	51,358	38,539	325	12,398	1,235
Dar es Salaam	1,668	8,648	4,774	17	2,370	102
Lindi	63,570	40,400	30,058	79	10,200	421
Mtwara	44,787	80,945	70,509	520	9,640	1,378
Ruvuma	22,943	47,458	38,731	0	21,381	1,024
Idinga	21,910	98,020	68,718	618	31,319	503
Mbeya	29,444	111,587	91,110	323	50,432	2,839
Singida	29,258	81,722	43,587	143	17,744	982
Tabora	42,638	80,342	53,738	102	44,081	527
Ruwa	30,334	63,891	49,619	625	19,968	162
Kigoma	25,953	107,532	28,097	214	17,755	1,048
Shinyanga	28,059	141,070	81,297	463	51,388	1,888
Kagera	52,011	164,241	69,524	0	47,188	518
Mwanza	39,487	111,080	87,328	622	42,593	254
Mara	29,238	65,197	32,632	270	34,994	2,831
Manyara	12,572	55,499	29,443	1,600	31,937	2,119
Mainland	637,918	1,792,284	1,094,786	7,170	693,947	28,372
Zanzibar	28,366	30,410	9,330	366	23,981	199
National	666,284	1,822,694	1,074,116	7,536	617,928	28,571

12.39 ACCESS TO EQUIPMENT: Number of agriculture households NOT Using Oxen by Main Reason for Not Using and Region for the 2002/03 agriculture year

Region	Oxen					
	Not Available	Price Too High	No Money to Buy / Rent	Too Much Labour Required	Equipment / Asset of No Use	Other
Dodoma	10,612	97,938	147,321	2,025	2,302	4,974
Arusha	3,524	28,041	18,737	2,964	18,068	5,232
Kilimanjaro	28,128	15,465	31,988	2,834	124,248	1,857
Tanga	42,368	60,652	95,652	3,385	80,547	960
Morogoro	102,101	65,452	48,584	2,808	31,824	3,897
Pwani	61,893	36,376	35,026	1,185	5,558	1,434
Dar es Salaam	4,582	6,584	7,312	132	1,433	88
Lindi	106,838	20,808	21,478	1,109	2,873	241
Mtwara	95,859	54,273	73,503	203	3,577	888
Ruvuma	82,622	36,862	52,958	896	13,568	2,853
Iringa	15,433	56,295	98,328	3,065	12,456	783
Mbeya	24,286	58,566	146,479	1,881	28,913	5,826
Singida	2,648	24,041	60,753	381	406	747
Tabora	5,182	41,272	95,930	612	2,171	312
Rufawa	8,638	28,393	52,852	332	1,867	167
Kigoma	61,923	55,004	50,636	2,281	3,300	1,741
Shinyanga	2,188	62,416	58,196	1,116	2,587	550
Kagera	75,823	100,890	82,637	1,878	84,657	796
Mwanza	13,020	68,143	145,008	7,158	9,226	856
Mara	7,390	28,691	48,560	700	8,970	1,589
Manyara	5,084	12,355	30,541	4,329	10,402	1,645
Total	785,985	961,792	1,406,692	40,666	428,574	37,671

12.40 ACCESS TO EQUIPMENT: Number of agriculture households NOT Using Ox Plough by Main Reason for Not Using and Region for the 2002/03 agriculture year

Region	Ox Plough					
	Not Available	Price Too High	No Money to Buy / Rent	Too Much Labour Required	Equipment / Asset of No Use	Other
Dodoma	11,050	104,077	143,599	5,312	2,591	4,326
Arusha	2,403	30,841	18,551	1,828	20,306	5,230
Kilimanjaro	25,427	15,394	35,476	1,087	126,951	1,514
Tanga	44,892	57,592	97,672	4,279	59,979	498
Morogoro	95,057	65,675	54,086	2,316	32,725	3,609
Pwani	53,009	35,381	43,012	2,125	6,432	1,527
Dar es Salaam	4,316	6,619	7,769	141	1,391	52
Lindi	104,510	22,317	23,014	775	2,125	165
Mtwara	94,333	58,622	69,934	257	5,747	421
Ruvuma	82,039	39,457	52,910	395	14,075	2,052
Iringa	17,920	58,066	101,183	2,388	14,136	651
Mbeya	23,097	67,726	140,609	964	31,841	5,417
Singida	2,151	28,605	60,257	678	1,933	506
Tabora	3,589	43,536	97,063	376	2,425	266
Rufawa	8,829	31,729	51,324	80	1,797	123
Kigoma	79,891	59,246	50,516	194	3,575	1,610
Shinyanga	2,960	65,620	65,093	638	2,653	422
Kagera	79,452	95,619	84,750	996	85,556	604
Mwanza	12,596	75,267	142,300	4,614	10,366	252
Mara	7,654	32,823	44,188	216	9,700	1,022
Manyara	5,894	16,959	31,067	3,667	10,308	1,284
Total	761,887	1,011,375	1,414,325	33,353	447,452	31,962

12.41 ACCESS TO EQUIPMENT: Number of agriculture households NOT Using Ox Seed Planter by Main Reason for Not Using and Region for the 2002/03 agriculture year

Region	Ox Seed Planter					
	Not Available	Price Too High	No Money to Buy / Rent	Too Much Labour Required	Equipment / Asset of No Use	Other
Dodoma	49,770	127,774	110,779	2,562	29,312	2,625
Arusha	18,713	59,239	30,349	2,192	39,058	5,081
Kilimanjaro	34,957	15,246	29,783	579	133,571	1,505
Tanga	48,063	56,855	89,210	3,383	57,241	367
Morogoro	107,505	85,028	47,479	1,683	34,377	3,547
Pwani	44,296	41,016	39,851	2,330	11,922	1,896
Dar es Salaam	4,323	6,504	7,730	17	1,698	75
Lindi	98,155	23,373	24,644	943	5,710	254
Mtwara	85,944	61,797	88,578	162	11,284	130
Ruvuma	80,272	39,977	52,907	76	16,934	983
Iringa	59,197	83,107	85,450	878	46,783	931
Mbeya	93,191	88,061	113,491	883	71,672	5,249
Singida	39,423	68,324	51,554	143	18,553	1,290
Tabora	61,531	65,562	77,319	796	27,855	27
Rufawa	55,914	52,577	52,099	0	11,002	89
Kigoma	61,631	56,968	49,071	392	6,083	1,057
Shinyanga	101,851	127,820	116,780	648	26,050	688
Kagera	83,980	93,111	82,790	1,112	91,726	554
Mwanza	77,618	98,563	114,020	3,700	45,416	188
Mara	49,668	64,527	42,228	537	30,968	211
Manyara	23,632	54,836	44,747	2,413	25,246	1,733
Total	1,300,833	1,352,418	1,332,834	25,628	752,582	28,481

12.42 ACCESS TO EQUIPMENT: Number of agriculture households NOT Using Ox-Cart by Main Reason for Not Using and Region for the 2002/03 agriculture year

Region	Ox Cart					
	Not Available	Price Too High	No Money to Buy / Rent	Too Much Labour Required	Equipment / Asset of No Use	Other
Dodoma	19,089	139,513	133,944	2,130	11,402	2,542
Arusha	9,308	60,118	37,546	1,978	29,989	4,398
Kilimanjaro	24,562	21,197	35,896	802	130,863	1,523
Tanga	41,816	62,523	94,254	2,577	53,250	426
Morogoro	97,007	66,033	50,801	2,333	34,524	3,840
Pwani	43,989	43,328	41,327	2,735	8,308	1,559
Dar es Salaam	4,118	6,896	7,890	29	1,536	122
Lindi	98,319	24,686	24,672	834	3,441	212
Mtwara	85,363	56,984	80,610	197	6,208	227
Ruvuma	80,293	42,936	51,772	373	13,026	2,719
Iringa	41,812	61,635	115,382	4,146	24,357	418
Mbeya	52,834	95,566	143,053	3,001	56,543	6,182
Singida	5,131	68,507	62,824	406	7,727	702
Tabora	7,581	72,100	119,280	936	10,717	634
Rufawa	20,699	62,524	75,706	145	5,756	128
Kigoma	78,366	56,191	53,186	2,848	5,931	916
Shinyanga	7,608	129,495	153,595	680	16,483	883
Kagera	77,047	106,735	80,461	857	77,060	237
Mwanza	23,264	114,347	152,590	2,584	27,861	740
Mara	35,657	71,113	55,206	271	21,434	1,750
Manyara	7,535	42,216	50,486	2,233	15,964	1,534
Total	660,348	1,424,657	1,650,565	32,107	572,342	31,703

12.43 ACCESS TO EQUIPMENT: Number of agriculture households NOT Using Tractors by Main Reason for Not Using and Region for the 2002/03 agriculture year

Region	Tractor					
	Not Available	Price Too High	No Money to Buy / Rent	Too Much Labour Required	Equipment / Asset of No Use	Other
Dodoma	27,262	161,933	112,083	1,887	9,926	1,642
Arusha	4,019	88,606	38,153	1,036	24,156	5,418
Kilimanjaro	4,374	43,940	47,158	366	81,260	1,891
Tanga	23,433	100,679	103,781	0	34,960	238
Morogoro	33,263	90,195	79,528	733	22,801	3,881
Pwani	18,172	87,621	51,958	127	1,899	682
Dar es Salaam	1,874	7,838	9,041	29	1,404	12
Lindi	46,932	46,610	57,616	0	1,416	178
Mtwara	42,183	96,662	87,161	236	2,041	26
Ruvuma	50,572	57,074	69,810	107	12,948	430
Ifinga	21,704	123,265	99,917	0	28,118	322
Mbeya	40,206	135,150	139,408	384	48,056	6,852
Singida	13,426	98,036	55,391	284	12,333	43
Tabora	24,731	103,437	85,564	1,743	17,508	0
Rufawa	22,079	76,287	68,422	0	5,275	119
Kigoma	41,956	80,731	69,928	0	1,775	1,378
Shinyanga	25,666	156,448	171,197	426	17,130	560
Kagera	43,281	138,098	100,010	20	70,965	406
Nwanza	38,790	152,895	104,585	513	41,160	374
Mara	23,570	86,106	50,368	12	27,328	66
Manyara	5,022	68,200	51,242	87	7,809	1,172
Total	553,512	1,960,807	1,653,282	7,991	470,328	25,686

12.44 ACCESS TO EQUIPMENT: Number of agriculture households NOT Using Tractor Ploughs by Main Reason for Not Using and Region for the 2002/03 agriculture year

Region	Tractor Plough					
	Not Available	Price Too High	No Money to Buy / Rent	Too Much Labour Required	Equipment / Asset of No Use	Other
Dodoma	31,084	161,998	110,739	1,008	10,620	1,626
Arusha	4,326	71,080	37,412	816	23,627	5,488
Kilimanjaro	6,202	43,651	47,767	641	84,666	1,891
Tanga	23,471	97,320	103,085	0	39,209	238
Morogoro	31,684	90,367	79,649	1,828	23,423	3,959
Pwani	17,372	85,838	54,727	211	1,793	948
Dar es Salaam	1,922	8,084	8,869	0	1,312	12
Lindi	51,348	42,570	56,666	0	2,304	166
Mtwara	43,912	97,138	83,239	34	3,806	20
Ruvuma	50,638	56,544	69,646	107	16,887	481
Ifinga	20,070	124,729	100,658	0	30,828	678
Mbeya	40,624	129,338	141,988	190	51,220	7,091
Singida	13,801	98,756	63,462	143	13,166	43
Tabora	26,481	103,399	85,843	1,562	18,178	0
Rufawa	21,847	78,341	67,889	0	8,112	0
Kigoma	42,472	79,156	70,830	0	1,931	1,378
Shinyanga	28,028	167,197	189,457	206	18,821	739
Kagera	43,029	139,897	100,658	0	69,489	406
Nwanza	40,268	160,881	103,048	513	44,922	222
Mara	23,336	88,506	49,690	183	27,864	136
Manyara	4,170	71,340	52,467	433	8,955	1,097
Total	583,882	1,950,864	1,646,547	7,871	487,729	26,408

12.45 ACCESS TO EQUIPMENT: Number of households NOT Using Tractor Harrows by Main Reason for Not Using and Region during 2002/03 agriculture year

Region	Tractor Harrow					
	Not Available	Price Too High	No Money to Buy / Rent	Too Much Labour Required	Equipment / Asset of No Use	Other
Dodoma	39,854	153,794	98,362	1,385	27,474	1,937
Arusha	6,758	72,832	35,836	540	30,507	4,710
Kilimanjaro	14,597	42,529	32,530	249	122,839	1,729
Tanga	24,353	97,528	101,091	120	40,666	431
Morogoro	34,481	94,640	84,336	1,525	35,346	4,109
Pwani	19,248	82,195	52,121	261	6,942	997
Dar es Salaam	2,135	7,685	8,801	29	1,710	12
Lindi	55,279	39,783	49,724	106	8,039	243
Mtwara	45,054	91,942	82,148	194	9,600	284
Ruvuma	51,322	55,537	65,867	241	16,505	637
Iringa	22,607	117,133	93,334	194	44,226	418
Mbeya	41,688	125,854	136,219	23	61,067	7,212
Singida	17,964	97,303	45,019	302	19,082	160
Tabora	29,126	100,977	84,425	1,444	19,734	0
Rukwa	23,215	73,095	67,636	113	7,992	0
Kigoma	42,889	79,025	69,668	0	2,507	1,486
Shinyanga	49,271	140,582	156,460	173	29,804	508
Kagera	43,438	138,904	100,800	188	69,742	405
Mwanza	45,011	145,969	99,576	664	48,724	222
Mara	24,884	85,729	45,746	78	30,610	78
Manyara	7,434	68,626	49,742	396	29,234	1,112
Total	640,604	1,891,473	1,558,426	8,228	662,349	26,680

12.46 ACCESS TO EQUIPMENT: Number of households NOT Using threshers/shellers by Main Reason for Not Using and Region during 2002/03 agriculture year

Region	Threshers / Shellers					
	Not Available	Price Too High	No Money to Buy / Rent	Too Much Labour Required	Equipment / Asset of No Use	Other
Dodoma	45,939	138,507	100,861	1,968	28,409	2,090
Arusha	14,334	65,367	30,096	564	37,671	4,388
Kilimanjaro	16,769	51,054	29,632	258	77,186	1,584
Tanga	36,935	116,518	73,075	0	37,834	599
Morogoro	71,567	93,462	51,220	1,854	38,939	2,951
Pwani	32,317	46,005	37,024	511	24,221	1,231
Dar es Salaam	2,688	7,725	5,698	0	4,221	61
Lindi	73,637	29,055	28,901	61	21,237	262
Mtwara	59,015	78,334	65,797	34	24,425	221
Ruvuma	62,276	48,859	49,625	231	21,781	224
Iringa	43,971	103,885	79,465	390	49,666	586
Mbeya	101,274	103,675	82,795	407	73,908	1,805
Singida	22,223	92,231	35,976	366	27,609	432
Tabora	52,594	79,595	68,973	668	33,968	108
Rukwa	51,139	54,810	55,221	0	11,057	34
Kigoma	51,866	75,249	52,650	0	11,529	1,072
Shinyanga	66,927	127,001	126,074	396	35,258	1,254
Kagera	68,926	122,172	75,786	193	65,795	405
Mwanza	78,029	116,915	82,698	942	60,702	278
Mara	40,467	78,291	37,611	198	30,926	197
Manyara	13,031	70,299	40,064	678	25,073	969
Total	1,046,644	1,700,010	1,211,573	8,735	741,396	20,802

12.47 ACCESS TO EQUIPMENT: Number of households NOT Using Hand Powered Sprayers by Main Reason for Not Using and by Region

Region	Hand Powered Sprayer							Total
	Not Available	Price Too High	No Money to Buy / Rent	Too Much Labour Required	Equipment / Asset of No Use	Other	Not applicable	
Dodoma	60,416	131,445	84,873	117	35,808	2,893	8,885	324,117
Arusha	5,578	52,817	18,266	518	20,334	3,811	52,883	155,386
Kilimanjaro	8,010	68,660	33,065	80	30,277	1,720	78,670	216,513
Tanga	21,431	123,848	68,371	50	35,155	704	17,578	265,148
Morogoro	38,865	108,528	47,280	276	27,188	1,234	36,852	261,294
Pwani	30,801	51,356	38,536	325	12,388	1,235	8,958	141,612
Dar es Salaam	1,658	8,648	4,774	17	2,370	102	2,899	20,456
Lindi	63,570	40,400	30,056	70	10,200	421	8,519	153,345
Mtwara	44,787	80,945	70,506	520	9,640	1,378	23,140	230,888
Ruvuma	22,943	47,458	35,731	0	21,381	1,024	51,838	191,175
Singa	21,910	88,020	68,718	818	31,318	503	57,803	279,091
Mbeya	28,444	111,587	91,110	323	50,432	2,839	87,322	373,057
Shinyanga	28,258	81,722	43,587	143	17,744	862	6,479	179,815
Tabora	42,638	80,342	53,738	102	44,081	527	14,582	236,919
Rufwa	30,334	63,891	48,616	625	19,868	162	7,674	172,273
Kigoma	25,953	107,532	28,067	214	17,755	1,048	15,167	195,765
Shinyanga	28,059	141,070	81,267	483	51,388	1,888	73,758	377,897
Kogoro	52,011	164,241	88,524	0	47,188	518	19,787	353,277
Mwanza	38,467	111,080	87,328	622	42,553	254	58,822	340,166
Mara	28,236	65,187	32,832	270	34,864	2,831	23,073	188,482
Manyara	12,572	58,486	28,443	1,800	31,837	2,118	21,028	154,184
Total	637,919	1,792,284	1,064,788	7,170	593,947	28,372	885,482	4,809,668
%	13	37	22	0	12	1	14	100

12.48 ACCESS TO EQUIPMENT: Number of households NOT Using Ox Plough by Main Reason for Not Using and Region

Region	Ox Plough								Total
	Not Available	Price Too High	No Money to Buy / Rent	Too Much Labor Required	Equipment / Asset of No Use	Other	Not applicable	Total	
Dodoma	11,050	1,04,077	143,689	5,312	2,681	4,326	52,861	323,586	
Arusha	2,403	31,040	18,951	1,838	20,306	5,230	75,845	166,002	
Kilimanjaro	25,427	15,394	35,476	1,097	120,951	1,514	10,340	216,099	
Tanga	44,892	67,892	97,872	4,279	59,979	498	459	266,211	
Morogoro	99,057	65,875	64,066	2,319	32,725	3,809	5,979	260,526	
Pwani	53,031	35,361	43,034	2,125	6,432	1,527	0	141,530	
Dar es Salaam	4,316	6,919	7,769	141	1,391	92	83	20,372	
Lindi	104,510	22,363	23,041	775	2,125	165	184	163,173	
Mtwara	94,333	68,622	69,934	257	5,747	421	0	229,314	
Ruvuma	82,036	39,569	52,910	395	14,075	2,032	103	191,175	
Zinga	17,982	68,066	101,193	2,398	14,260	851	83,918	278,656	
Mtewa	23,097	67,728	140,609	964	31,841	5,417	103,251	372,907	
Shinyanga	2,151	29,605	60,257	678	1,903	506	85,616	179,915	
Tabora	3,689	43,536	97,063	379	2,429	266	88,706	236,966	
Rukwa	8,829	31,729	51,324	80	1,787	123	78,368	172,261	
Kigoma	79,891	69,246	50,516	194	3,575	1,810	733	195,765	
Shinyanga	2,060	69,210	65,211	638	2,693	422	238,796	378,961	
Kopere	79,452	95,616	94,750	996	88,556	804	5,098	363,277	
Mwanza	12,596	75,267	142,300	4,014	10,366	252	94,861	340,085	
Mara	7,654	32,823	44,188	218	9,700	1,022	92,461	188,066	
Mtanyara	5,894	19,959	31,067	3,687	10,369	1,294	85,016	154,194	
Total	761,951	1,012,363	1,414,482	33,353	447,576	31,952	1,102,360	4,804,042	
%	16	21	29	1	9	1	23	100	

12.49 ACCESS TO EQUIPMENT: Number of households NOT Using Ox Cart: by Main Reason for Not Using and by Region

Region	Ox Cart										Total
	Not Available	Price Too High	No Money to Buy / Rent	Too Much Labour Required	Equipment / Asset of No Use	Other	Not applicable				
Dodoma	19,069	130,513	133,644	2,130	11,452	2,542	14,738				323,337
Arusha	8,308	60,116	37,948	1,978	29,989	4,368	11,321				164,666
Kilimanjaro	24,682	21,187	35,888	802	130,683	1,523	1,207				216,173
Tanga	41,816	62,623	94,264	2,577	63,260	426	363				266,196
Mwanza	67,007	66,033	60,801	2,333	34,624	3,840	6,338				260,876
Pwani	43,989	43,328	41,327	2,735	8,309	1,509	282				141,510
Dar es Salaam	4,118	8,666	7,860	29	1,536	122	4				20,394
Lindi	66,319	24,000	24,672	834	3,441	212	0				163,173
Mtwara	65,383	66,984	80,010	187	6,208	227	0				228,988
Ruvuma	80,293	42,930	61,772	373	13,029	2,719	55				181,175
Iringa	41,874	81,835	115,382	4,148	24,481	418	10,571				278,717
Mbeya	62,834	65,968	143,053	3,051	66,543	6,182	15,513				372,702
Singida	5,131	68,607	82,624	406	7,727	702	14,919				179,915
Tabora	7,591	72,100	119,290	939	10,717	634	24,678				236,917
Rukwa	20,659	62,624	75,708	145	5,766	129	7,578				172,486
Njombe	76,366	66,191	63,188	2,848	5,631	919	329				185,705
Siriyange	7,608	128,860	153,949	680	16,483	883	68,222				377,675
Kagera	77,047	106,735	90,481	867	77,060	237	891				363,277
Mwanza	23,264	114,347	152,680	2,694	27,681	740	18,702				386,916
Mara	35,667	71,113	68,208	271	21,434	1,760	1,771				188,203
Morogoro	7,536	42,219	50,489	2,233	15,964	1,534	34,202				154,194
Total	880,410	1,425,011	1,650,919	32,107	672,486	31,703	231,848				4,804,264
%	18	30	34	1	12	1	5				100

12.50 ACCESS TO EQUIPMENT: Number of households NOT Using Tractor Plough by Main Reason for Not Using and Region

Region	Tractor Plough						Total
	Not Available	Price Too High	No Money to Buy / Rent	Too Much Labour Required	Equipment / Asset of No Use	Other	
Dodoma	31,084	161,888	110,739	1,006	10,820	1,525	316,872
Arusha	4,326	71,080	37,412	818	23,827	5,486	142,747
Kilimanjaro	6,202	43,661	47,757	641	84,565	2,016	184,832
Tanga	23,471	87,320	103,065	0	39,208	238	263,304
Morogoro	31,584	80,307	78,548	1,828	23,423	3,859	230,530
Pwani	17,372	66,838	54,727	211	1,783	948	140,867
Dar es Salaam	1,922	8,084	8,889	0	1,312	12	20,189
Lindi	51,348	42,570	56,558	0	2,304	155	152,831
Mtwara	43,812	87,138	83,238	34	3,805	26	228,156
Ruvuma	50,638	66,544	68,645	107	15,687	481	191,101
Iringa	20,070	124,729	100,858	0	30,828	578	276,862
Mbeya	40,524	128,338	141,886	190	51,220	7,081	370,350
Singida	13,801	88,798	53,482	143	13,185	43	176,370
Tabora	26,481	103,389	85,843	1,562	18,178	0	235,463
Rukwa	21,847	78,341	67,888	0	6,112	0	172,190
Kigoma	42,472	78,156	70,830	0	1,831	1,378	195,788
Shinyanga	26,028	157,187	189,457	205	18,821	738	372,436
Kagera	43,029	139,687	100,858	0	89,488	405	363,277
Mwanza	40,288	150,681	103,048	513	44,922	222	336,854
Mara	23,338	86,508	48,680	183	27,884	138	187,717
Manyara	4,170	71,340	52,467	433	8,555	1,007	138,362
Total	553,862	1,960,964	1,648,547	7,871	497,728	26,530	4,683,404
%	12	42	35	0	11	1	100

TREE FARMING & AGROFORESTRY

14.1 TREE FARMING/AGROFORESTRY: Number of Households with planted trees by Region, 2002/03 agriculture year

Regions	Households with planted trees		Households without planted trees		Total
	Number	%	Number	%	
Dodoma	22,308	7	301,411	93	323,719
Arusha	32,725	21	122,133	79	154,857
Kilimanjaro	132,827	61	83,345	39	216,173
Tanga	28,901	11	236,387	89	265,198
Morogoro	18,184	7	242,862	93	260,746
Pwani	3,240	2	136,290	98	141,530
Dar es Salaam	3,543	17	16,852	83	20,394
Lindi	707	0	152,467	100	153,173
Mtwara	2,088	1	227,228	99	229,314
Ruvuma	43,315	23	147,880	77	191,175
Iringa	71,531	28	207,185	74	278,717
Mbeya	49,701	13	323,144	87	372,844
Singida	11,552	6	166,364	94	179,815
Tabora	4,847	2	231,070	98	235,917
Rufawa	29,439	17	142,822	83	172,261
Kigoma	23,768	12	171,997	88	195,765
Shinyanga	13,645	4	364,213	96	377,857
Kagera	47,475	13	305,802	87	353,277
Mwanza	44,741	13	295,343	87	340,085
Mara	54,015	29	134,188	71	188,203
Manyara	13,510	8	140,684	91	154,194
Malindi	651,960	14	4,153,355	86	4,805,315
Zanzibar	2,931	3	93,591	97	96,522
National	654,891	13	4,245,946	87	4,901,837

14.2 TREE FARMING/AGROFORESTRY: Number of Households and number of trees Planted on their Land by Planting Location and Region, 2002/03 agriculture year

Region	Where Planted								
	Mostly on Field / Plot Boundaries		Mostly Scattered in Field		Mostly in Plantation / Coppice		Total		
	Number of Households	Number of Trees	Number of Households	Number of Trees	Number of Households	Number of Trees	Number of Households	Number of Trees	Number of trees per household
Dodoma	11,917	991,238	6,175	81,410	2,217	387,324	22,308	1,459,972	65
Arusha	21,729	603,178	7,622	468,721	3,374	953,741	32,725	1,525,639	59
Kilimanjaro	80,741	1,562,786	50,013	1,147,900	2,000	779,975	132,754	3,480,560	26
Tanga	18,096	507,502	7,757	338,029	2,623	372,567	28,308	1,216,098	43
Morogoro	13,500	529,124	2,944	91,040	1,740	1,877,326	18,184	2,497,490	137
Pwani	2,046	123,290	831	141,126	290	86,947	3,166	351,362	111
Dar es Salaam	2,071	50,794	1,435	231,224	38	215	3,543	289,223	81
Lindi	592	2,870	28	142	0	0	620	2,812	5
Mtwara	1,068	7,772	1,030	15,279	0	0	2,088	23,051	11
Ruvuma	13,533	1,415,487	10,155	1,132,478	13,821	6,047,018	43,309	10,394,983	245
Iringa	16,223	2,710,204	6,562	1,975,270	50,098	42,234,321	71,271	48,919,790	658
Mbeya	12,976	1,047,798	3,008	968,693	33,802	18,793,409	49,486	20,797,891	420
Singida	7,063	79,550	3,408	89,884	1,083	37,100	11,552	188,396	16
Tabora	2,286	14,898	1,284	66,840	1,049	109,041	4,619	190,349	41
Rufawa	10,708	311,396	8,175	426,878	4,668	1,384,359	29,439	2,101,632	71
Kigoma	10,824	725,988	6,440	530,344	7,684	2,643,456	23,928	3,903,784	163
Shinyanga	6,343	402,547	5,121	484,840	2,017	107,119	13,481	994,512	74
Kagera	18,332	1,320,803	6,893	364,909	20,250	12,840,858	47,475	14,326,368	302
Mwanza	10,166	482,868	20,857	1,127,899	8,600	1,568,939	44,803	3,170,706	71
Mara	20,896	809,308	21,397	1,375,436	5,623	2,362,652	63,675	4,537,392	85
Manyara	5,544	281,472	2,305	52,572	1,661	489,940	13,510	803,964	60
Malindi	309,290	13,880,428	181,806	11,075,319	159,004	94,617,222	650,100	119,772,968	184
Zanzibar	1,477	145,463	1,193	465,083	1,054	826,770	3,725	1,441,315	387
National	310,767	14,029,890	183,000	11,540,402	160,058	95,543,982	653,825	121,214,284	185

14.3 ON FARM TREE PLANTING: Number of Planted Trees by Species and Region

Regions	Senec Spp	Gravella	Azela Quanzensis	Acacia Spp	Pinus Spp	Eucalyptus Spp	Cyrus Spp	Calophyllum Inophyllum	Melicis suecica
Dodoma	183,994	51,128		158,231	295,545	430,229	6,238		
Arusha	128,687	1,068,107	5,492	18,206	2,324	219,989	403,845	33,458	199
Kilimanjaro	375,274	1,838,258	57,608	48,187	28,343	889,148	178,907	1,881	14,083
Tanga	32,188	821,208			19,121	91,764	72,130		
Morogoro	66,681	2,171,081	2,097	7,328	119	35,777	42,418	51,528	2,883
Pwani	71,987	14,480		24,479		16,570	11,883		124,182
Dar es Salaam	12,004	189,881	289	638	201	18,413			2,143
Lindi	1,008					142			301
Mtwara	16,088			2,085					628
Ruvuma	243,200	698,771	1,585	210,757	224,851	7,638,802	1,298,088	173,727	10,034
Iringa	31,190	589,138	10,682	1,038,921	33,903,348	5,950,507	4,485,037		3,058
Mbeya	173,647	16,727			4,287,540	8,714,472	9,538,369		28,304
Singida	30,883	45,638		813		74,864	1,927	243	
Tabora	7,114	8,443		32,393	3,058	29,003			833
Rukwa	222,188	58,385	10,399	3,734	1,174	1,778,915	5,573	148	675
Kigoma	140,224	440,487		27,242	12,078	3,207,894	29,982	532	
Shinyanga	7,578	260,860	1,076	130,387	3,031	10,312	4,225		
Kagera	2,950	1,187,879	83,683	5,419	888,283	12,376,281	188,135	28,582	643
Mwanza	105,782	397,413		54,001	8,995	1,140,360	388,310	14,754	3,181
Mara	101,815	388,923	5,801	32,544	23,032	1,807,691	324,484	80,978	6,211
Manyara	29,588	493,308		2,890	8,732	94,871	87,820		
Mainland	1,902,353	10,498,098	158,193	1,793,943	39,509,178	42,324,475	17,028,188	386,023	194,057
%	1.9	8.7	0.1	1.5	32.8	34.9	14.0	0.3	0.2
Zanzibar	2,898	0	0	228,121	0	108,222	0.0	33,273	229
National	1,985,079	10,498,098	158,193	2,019,064	39,509,178	42,432,697	17,028,188	419,297	194,287

Regions	Cesunia Equisetifolia	Tactona Grandis	Terminalia Catepa	Terminalia litoralis	Messopsia Berchemioides	Leucena Spp	Syzzygium Spp	Azadirachta Spp	Jakaranda Spp
Dodoma		3,598		889		184,842	15,614	154,435	
Arusha		305		323		4,127	882	17,373	12,503
Kilimanjaro	51,015	30,180	5,839	845	54,085	6,494	7,813	38,362	12,377
Tanga	6,882	313,570	2,483	1,301		4,052	243	3,380	251
Morogoro	1,288	33,170	707	18		6,558	1,782	5,718	131
Pwani	3,278	58,168	240	947		4,455	211	7,408	
Dar es Salaam	1,158	444	387	143		35,784	88	14,330	440
Lindi								888	
Mtwara			302					408	198
Ruvuma	427		8,073	8,388		2,285	1,511	2,181	11,310
Iringa		1,819		238		775,483	10,885	8,974	1,701
Mbeya	28,882			880		16,887		8,020	1,275
Singida						8,898	5,087	8,862	143
Tabora	187	495	578	1,780		16,822	751	4,300	
Rukwa	400	400				158	239	889	17,558
Kigoma	2,920	884			18,834	4,118	1,480	5,138	2,850
Shinyanga	308	144	867	1,067		487,038	347	95,534	216
Kagera	288				1,083,430			208	
Mwanza	4,258	4,254	1,837	588	514,129	49,583	5,870	348,785	1,545
Mara	20,380	14,878	358	2,274	3,162	33,062	8,828	107,041	40,189
Manyara			454			14,342	599	11,287	502
Mainland	120,881	463,888	23,595	17,303	1,688,277	1,814,532	80,008	841,185	102,992
%	0.1	0.4	0.0	0.0	1.4	1.3	0.0	0.7	100.0
Zanzibar	1,089,132	1,710	383	41	0	0	57	124	0
National	1,189,813	464,799	23,938	17,343	1,688,277	1,814,532	80,067	841,292	102,992

Regions	Albizia Spp	Kyaya Spp	Sebania Spp	Calliandra Spp	Moringa Spp	Saraca Spp	Trichilia Spp	Total	%
Dodoma			332		14,937		2,064	1,459,672	1.20
Arusha	933			183			3,429	1,911,996	1.58
Kilimanjaro	228,157	499	1,376	13,424	1,604	260	4,875	3,866,692	3.03
Tanga	10,639	4,420	664		3,646	1,285	8,518	1,196,782	0.99
Morogoro	54	42,590			22,249	2,839	1,108	2,497,414	2.08
Pwani					12,936	477		361,509	0.29
Dar es Salaam		160		402	3,772	6,489	2,154	288,223	0.24
Lindi							693	2,812	0.00
Mtwara					1,815			21,426	0.02
Ruvuma	21,542	12,720	82	738			1,437	10,688,130	8.72
Iringa			132	96,683	18,828			48,904,504	38.70
Mbeya	439		1,209		1,014			20,816,716	17.18
Singida		974			8,976			186,395	0.15
Tabora	34,292				52,394			190,349	0.16
Rukwa							706	2,101,832	1.73
Kigoma					9,413			3,903,784	3.22
Shinyanga	2,578			16,118	1,575			997,782	0.82
Kagera					193	2,201	1,352	15,806,525	12.88
Mwanza	1,730	311	34,672		114,311		347	3,172,997	2.82
Mara	47,282	6,312	106,817	4,863	7,482		1,371,383	4,540,064	3.75
Mtanyika	64,356				352			809,098	0.87
Mainland	412,038	66,980	144,104	132,431	275,478	12,522	1,398,034	121,195,710	100.00
%	0.3	0.1	0.1	0.1	0.2	0.0	1.2	100.0	
Zanzibar	0	81	0	0	265	0	0	1,441,316	0
National	412,038	67,061	144,104	132,431	275,743	12,522	1,398,034	122,637,026	100

14.4 TREE PLANTING/AGROFORESTRY: Number of households planting trees by Main Use of Tree and Region, 2002/03 agriculture year

Region	Main Use							Total
	Plants / Timber	Poles	Charcoal	Fuel for Wood	Shade	Medicinal	Other	
Dodoma	9,839	1,221	100	5,290	14,214	1,266	1,477	33,407
Arusha	26,220	4,842	297	8,391	8,296	990	76	46,110
Kilimanjaro	95,189	12,888	202	33,765	71,061	3,173	1,838	217,915
Tanga	16,214	3,785	0	10,527	3,670	198	735	35,324
Morogoro	9,156	1,936	93	3,833	8,376	717	791	24,902
Pwani	1,177	359	20	714	1,130	561	193	4,154
Dar es Salaam	482	483	22	1,310	2,663	351	168	5,689
Lindi	100	0	0	0	352	99	89	620
Mtwara	216	452	0	423	803	0	419	2,313
Ruvuma	21,299	4,261	129	14,032	16,888	306	233	57,219
Ifinga	65,953	6,850	484	10,319	1,753	478	1,369	67,204
Mbeya	26,112	6,815	113	24,015	1,931	124	1,011	60,120
Singida	5,215	2,081	0	2,578	3,512	850	2,124	16,361
Tabora	395	252	0	2,585	1,576	108	1,183	6,085
Rukwa	8,170	3,122	35	9,520	10,334	444	70	31,895
Kigoma	11,817	2,785	388	13,058	3,556	865	191	32,635
Shinyanga	3,200	992	0	8,444	3,671	804	752	17,863
Kagera	31,671	14,868	0	13,255	2,263	228	0	62,284
Mwanza	44,895	5,554	539	13,090	3,610	4,047	416	71,949
Mara	46,290	8,797	190	14,012	8,232	2,910	1,099	79,520
Manyara	10,288	1,644	0	3,528	1,619	888	50	18,028
Mainland	433,648	83,874	2,610	192,689	157,912	19,393	14,273	914,397
Zanzibar	723	1,975	211	594	74	15	133	3,725
National	434,371	85,849	2,820	193,282	157,986	19,408	14,406	918,122

14.5 TREE PLANTING/AGROFORESTRY: Number of households planting trees by Second Use of Tree and Region, 2002/03 agriculture year

Region	Second Use							Total
	Plants / Timber	Poles	Charcoal	Fuel for Wood	Shade	Medicinal	Other	
Dodoma	9,839	1,221	100	5,290	14,214	1,266	1,477	33,407
Arusha	26,220	4,842	297	8,391	8,296	990	76	46,110
Kilimanjaro	95,189	12,888	202	33,765	71,061	3,173	1,838	217,915
Tanga	16,214	3,785	0	10,527	3,670	198	735	35,324
Morogoro	9,156	1,936	93	3,833	8,376	717	791	24,902
Pwani	1,177	359	20	714	1,130	561	193	4,154
Dar es Salaam	482	483	22	1,310	2,663	351	168	5,689
Lindi	100	0	0	0	352	99	89	620
Mtwara	216	452	0	423	803	0	419	2,313
Ruvuma	21,299	4,261	129	14,032	16,888	306	233	57,219
Ifinga	65,953	6,850	484	10,319	1,753	478	1,369	67,204
Mbeya	26,112	6,815	113	24,015	1,931	124	1,011	60,120
Singida	5,215	2,081	0	2,578	3,512	850	2,124	16,361
Tabora	395	252	0	2,585	1,576	108	1,183	6,085
Rukwa	8,170	3,122	35	9,520	10,334	444	70	31,895
Kigoma	11,817	2,785	388	13,058	3,556	865	191	32,635
Shinyanga	3,200	992	0	8,444	3,671	804	752	17,863
Kagera	31,671	14,868	0	13,255	2,263	228	0	62,284
Mwanza	44,895	5,554	539	13,090	3,610	4,047	416	71,949
Mara	46,290	8,797	190	14,012	8,232	2,910	1,099	79,520
Manyara	10,288	1,644	0	3,528	1,619	888	50	18,028
Mainland	433,648	83,874	2,610	192,689	157,912	19,393	14,273	914,397
Zanzibar	307	600	215	2,343	168	0	93	3,725
National	433,955	84,474	2,825	195,031	168,078	19,393	14,366	918,122

14.6 TREE FARMING/AGROFORESTRY: Number of Trees Utilised and Value by type of utilisation and Region

Region	Utilisation of trees				Total Value (Tsh)
	Number of Plank Trees Sold	Number of Pole Trees Sold	Number of Poles hh Utilised	Number of Timber hh Utilised	
Dodoma	2,418	4,833	10,832	2,248	22,530,788
Arusha	42,862	10,057	28,903	13,858	283,038,292
Kilimanjaro	188,427	79,732	104,515	55,911	1,834,722,473
Tanga	23,383	7,512	30,483	8,439	327,870,975
Morogoro	12,384	5,829	24,740	7,307	110,378,581
Pwani	2,723	8,970	7,542	184	22,980,902
Dar es Salaam	25	1,841	1,008	52	3,940,087
Lindi	0	0	0	0	0
Mtwara	0	0	0	0	19,227
Ruvuma	29,422	377,984	241,882	15,312	455,923,772
Iringa	2,090,079	232,741	327,224	132,815	2,333,501,148
Mbeya	280,150	473,518	348,303	82,423	970,948,384
Singida	19,804	20,344	3,483	1,228	22,432,315
Tabora	0	5,490	7,380	0	16,909,845
Rukwa	21,154	33,529	81,589	9,009	91,481,240
Kigoma	22,588	59,042	73,571	4,053	58,015,733
Shinyanga	202	5,514	8,128	1,409	17,388,750
Kagera	55,128	844,189	388,974	15,847	583,707,949
Mwanza	107,355	89,798	38,085	19,029	384,817,882
Mara	157,025	125,920	184,034	37,089	697,420,488
Manyara	10,427	13,087	14,530	3,417	38,503,704
Mainland	3,053,381	2,397,520	1,890,803	409,608	8,238,313,294
Zanzibar	40,830	87,781	10,348	267	80,315,095
National	3,094,191	2,485,302	1,871,151	409,875	8,318,628,389

14.7 COMMUNITY TREE PLANTING: Number of Households Involved in community tree planting by Main scheme household involvement and Region, 2002/03 agriculture year

Region	Household Involvement				
	Only Planting	Only Protection & Thinning	Only Cutting	Most or all Activity	Total
Dodoma	17,714	8,093	141	8,601	36,549
Arusha	9,809	1,830	335	2,827	14,401
Kilimanjaro	8,990	3,487	0	3,172	15,649
Tanga	11,813	1,877	29	14,625	27,944
Morogoro	8,078	3,333	800	7,630	17,641
Pwani	1,091	589	0	3,098	4,778
Dar es Salaam	161	31	0	1,405	1,596
Lindi	323	81	0	915	1,319
Mtwara	4,832	1,085	0	1,003	6,920
Ruvuma	12,786	1,136	27	20,800	34,549
Iringa	33,309	12,229	366	51,415	97,319
Mbeya	38,990	7,491	3,158	38,447	88,086
Singida	16,813	9,385	661	18,288	45,146
Tabora	11,290	2,785	158	12,371	26,585
Rukwa	17,891	2,513	35	15,997	36,536
Kigoma	14,048	588	0	8,668	23,302
Shinyanga	19,985	3,843	423	22,041	46,292
Kagera	9,550	10,225	3,034	13,150	36,959
Mwanza	9,783	3,203	366	28,156	39,499
Mara	13,091	4,885	118	3,650	21,544
Manyara	6,347	2,252	114	5,915	14,627
Total	284,382	80,310	9,552	281,971	636,215
%	42	13	2	44	100

14.8 COMMUNITY TREE PLANTING: Number of Households by Distance to Community Planted Forest (Km) By Region, 2002/03 agriculture year

Region	Distance						Total
	0-9 Km	10-19 Km	20-29 Km	30-39 Km	40-49 Km	Above 50 Km	
Dodoma	13,148	6,844	4,885	2,838	1,838	2,875	32,433
Arusha	10,346	1,196	890	518	173	0	13,123
Kilimanjaro	2,416	2,753	3,317	1,221	1,968	596	12,281
Tanga	11,887	4,497	6,309	3,538	405	638	27,073
Morogoro	12,288	1,502	1,288	946	131	1,812	17,845
Pwani	849	380	121	70	514	309	2,353
Dar es Salaam	221	28	692	336	0	82	1,287
Lindi	161	60	0	0	32	0	254
Mtwara	1,595	1,736	1,019	163	0	261	4,773
Ruvuma	12,882	5,738	5,482	3,908	2,109	1,712	31,840
Iringa	35,486	16,582	13,278	8,848	5,364	13,086	83,636
Mbeya	26,328	19,744	18,364	10,347	4,830	6,305	85,917
Singida	12,088	8,541	6,887	5,527	3,333	5,307	42,484
Tabora	8,058	5,348	5,094	2,148	408	1,873	24,026
Rukwa	17,248	7,105	5,250	2,110	465	3,012	35,190
Kigoma	12,823	8,549	3,882	919	0	129	23,302
Shinyanga	20,244	6,882	5,286	4,781	3,178	3,574	43,942
Kagera	13,823	7,250	5,613	2,914	1,480	2,826	33,906
Mwanza	11,711	11,382	8,262	5,278	1,078	671	38,379
Mara	10,118	3,368	3,051	1,698	1,860	2,031	21,925
Manyara	6,280	2,557	852	959	1,018	1,840	13,525
Mainland	240,929	118,890	89,802	60,969	29,979	48,879	586,347
Zanzibar	2,039	0	0	0	0	0	2,039
National	242,967	118,890	90,502	60,969	29,979	48,879	601,386

14.9 COMMUNITY TREE PLANTING: Number of Households involved in community tree planting by Main Purpose and Region

Region	Main Purposes					Total
	Erosion Control	Production of Poles	Production of Firewood	Restoration of Wildlife	Other	
Dodoma	3,750	818	129	30,851	0	35,549
Arusha	228	475	241	19,708	0	14,652
Kilimanjaro	859	291	73	14,407	114	15,744
Tanga	904	1,007	8,923	18,333	135	27,902
Morogoro	898	245	1,428	14,810	1,807	18,559
Pwani	404	15	22	4,337	0	4,778
Dar es Salaam	0	353	0	1,243	0	1,596
Lindi	81	888	0	319	0	1,280
Mtwara	1,375	187	0	5,358	0	6,920
Ruvuma	3,180	2,418	128	28,545	148	34,417
Iringa	4,854	12,069	7,924	54,488	18,186	97,520
Mbeya	5,057	15,297	11,173	48,254	9,899	89,680
Singida	4,884	3,000	2,870	33,958	855	45,148
Tabora	494	1,528	3,424	21,024	50	26,518
Rukwa	1,311	2,477	2,704	28,845	395	36,502
Kigoma	0	8,852	3,748	10,137	3,353	24,091
Shinyanga	7,757	1,134	8,477	30,814	173	46,155
Kagera	2,188	9,997	5,569	17,485	970	36,210
Mwanza	1,006	1,738	9,291	27,093	321	39,450
Mara	815	5,152	135	14,896	1,753	22,550
Manyara	3,285	2,258	207	8,348	541	14,637
Total	42,576	88,794	82,468	427,853	38,299	639,880
%	7	11	10	67	8	100

14.10 COMMUNITY TREE PLANTING: Number of Households involved in community tree planting by Use and Region

Regions	Main use during 2002/03							Total
	Poles	Timber Logs	Charcoal	Firewood	Not Ready to Use	Not Allowed to Use	Other	
Dodoma	1,131	8,224	0	7,078	4,816	16,547	0	35,796
Arusha	2,979	1,605	74	755	3,170	6,067	0	14,650
Kilimanjaro	1,485	146	113	2,859	3,794	7,051	0	15,448
Tanga	1,484	3,952	146	8,464	8,022	5,437	205	28,710
Morogoro	372	4,985	188	3,041	7,923	3,330	131	19,960
Pwani	431	172	0	102	3,614	573	47	4,939
Dar es Salaam	190	178	0	89	387	789	0	1,613
Lindi	81	1,011	0	0	225	94	0	1,411
Mtwara	854	796	89	340	937	3,853	354	7,413
Ruvuma	6,634	5,720	146	2,951	11,492	6,885	1,164	35,982
Iringa	7,012	54,764	381	12,992	16,359	3,501	2,522	98,621
Mbeya	15,971	25,512	1,005	18,087	20,033	7,003	2,298	90,909
Singida	7,191	5,744	590	6,895	16,329	7,812	1,788	46,529
Tabora	6,352	357	76	6,613	11,191	2,826	0	27,515
Rukwa	1,344	8,978	415	4,710	16,097	4,201	614	37,350
Kigoma	4,692	8,823	592	4,036	3,017	0	5,128	24,289
Shinyanga	2,102	8,249	438	9,948	18,071	9,894	3,006	49,807
Kagera	11,861	5,724	267	3,487	14,073	2,530	0	37,942
Mwanza	3,008	8,871	908	16,510	7,728	3,019	162	39,908
Mara	3,130	12,168	117	70	4,825	2,768	108	23,186
Manyara	3,418	2,017	198	2,318	3,386	3,029	185	14,538
Mainland	81,822	163,987	5,442	112,122	176,699	97,498	18,072	555,642
%	12	25	1	17	27	15	3	100
Zanzibar	1,503	335	25	282	526	187	45	2,902
National	83,324	164,321	5,468	112,404	177,225	97,685	18,117	558,544

CROP EXTENSION

**15.1 CROP EXTENSION: Number of Agriculture Households
Receiving Extension Messages by Region During the 2002/03
Agriculture Year**

Region	Number of Households Receiving Extension Advice	%	NUMBER of Households NOT Receiving Extension Advice	%	Total Number of Households
Dodoma	132,389	41	191,331	59	323,719
Arusha	43,073	28	111,784	72	154,857
Kilimanjaro	135,826	63	80,345	37	216,173
Tanga	121,487	46	143,711	54	265,198
Morogoro	67,358	26	193,377	74	260,746
Pwani	46,727	33	94,803	67	141,530
Dar es Salaam	13,122	64	7,272	36	20,394
Lindi	25,571	17	127,602	83	153,173
Mtwara	40,456	18	188,858	82	229,314
Ruvuma	67,199	35	123,975	65	191,175
Shanga	179,297	64	99,420	36	278,717
Mbeya	153,818	41	219,026	59	372,844
Singida	86,702	48	93,214	52	179,915
Tabora	62,956	27	172,961	73	235,917
Rukwa	29,046	17	143,215	83	172,261
Kigoma	118,417	60	77,348	40	195,765
Shinyanga	104,252	28	273,606	72	377,857
Kagera	69,081	20	284,196	80	353,277
Mwanza	71,522	21	286,562	79	340,085
Mara	62,900	33	125,403	67	188,203
Manyara	36,712	25	115,682	75	154,194
Mainland	1,559,621	35	3,135,494	65	4,805,315
Zanzibar	17,109	18	79,413	82	96,522
National	1,688,829	34	3,214,907	68	4,901,837

15.2 Crop Extension Services: Number of Agriculture Households By Quality of Extension and Region During the 2002/03 Agriculture Year

Region	Quality of service									
	Very Good	%	Good	%	Average	%	Poor	%	No Good	%
Dodoma	20,897	18	86,304	86	19,855	15	2,731	2	1,528	1
Arusha	10,739	25	24,394	57	7,007	16	743	2	0	0
Kilimanjaro	25,343	19	75,225	56	28,556	21	4,972	4	467	0
Tanga	9,720	8	75,286	83	32,287	27	1,505	1	1,564	1
Morogoro	9,539	14	45,171	67	11,138	17	1,211	2	102	0
Pwani	7,474	18	30,499	86	7,805	18	357	1	390	1
Dar es Salaam	1,916	15	9,322	72	1,489	11	190	1	112	1
Lindi	4,195	16	17,117	67	3,698	14	474	2	89	0
Mwera	5,115	20	27,511	68	4,069	10	489	1	178	0
Ruvuma	7,192	11	45,999	69	11,967	18	1,088	2	668	1
Iringa	32,536	19	123,583	71	15,031	9	2,780	2	1,264	1
Mbeya	19,852	13	107,638	70	23,298	15	1,949	1	303	0
Singida	9,349	11	82,764	73	11,287	13	2,254	3	925	1
Tabora	9,547	16	40,448	65	10,282	17	1,381	2	358	1
Rukwa	2,857	9	16,539	57	8,059	28	1,675	6	0	0
Kigoma	13,933	12	68,930	58	34,950	29	773	1	0	0
Shinyanga	13,475	13	66,075	64	20,903	20	1,648	2	358	0
Kagera	6,971	10	45,522	66	15,752	23	734	1	0	0
Mwanza	13,371	19	45,399	64	11,801	17	587	1	101	0
Mara	6,635	11	40,174	64	15,298	24	547	1	0	0
Nyanza	5,049	13	21,808	57	9,235	24	1,647	5	357	1
Mainland	238,297	14	1,075,479	65	303,224	18	29,893	2	8,792	1
Zanzibar	3,726	22	9,504	56	3,223	19	481	3	100	1
National	242,023	14	1,085,043	65	306,447	18	30,384	2	8,895	1

15.3 EXTENSION MESSAGES: Number of Agriculture Households By Source of Extension Messages By Region During the 2002/03 Agriculture Year

Region	Source of Crop Extension										
	Government	%	NGO / Development Project	%	Cooperative	%	Large Scale Farm	%	Other	%	Households Receiving Extension Advice
Dodoma	124,380	85	1,003	1	0	0	229	0	0	0	738
Arusha	39,989	94	1,196	3	185	0	543	1	0	0	187
Kilimanjaro	128,975	98	2,573	2	518	0	472	0	0	0	74
Tanga	118,592	99	438	0	107	0	433	0	0	0	296
Morogoro	81,803	93	2,306	3	248	0	1,451	2	0	0	200
Pwani	44,889	97	227	0	357	1	755	2	0	0	140
Dar es Salaam	12,178	98	94	1	19	0	232	2	0	0	113
Lindi	24,848	97	187	1	68	0	403	2	0	0	0
Mwera	39,227	97	374	1	170	0	492	1	0	0	0
Ruvuma	59,075	88	1,791	3	1,907	3	2,485	4	0	0	1,013
Iringa	165,828	93	4,740	3	74	0	3,072	2	0	0	2,055
Mbeya	128,318	84	6,182	4	1,577	1	5,527	4	0	0	8,010
Singida	83,765	97	883	1	250	0	855	1	0	0	348
Tabora	49,275	80	8,488	14	2,982	5	581	1	0	0	278
Rukwa	24,535	85		10	330	1	887	3	0	0	170
Kigoma	112,202	95	3,504	3	197	0	988	1	0	0	806
Shinyanga	98,589	98	2,489	2	458	0	343	0	0	0	32
Kagera	59,595	87	5,984	9	597	1	707	1	0	0	1,147
Mwanza	81,731	87	6,754	10	524	1	1,891	2	0	0	135
Mara	58,531	95	2,395	4	188	0	240	0	0	0	134
Nyanza	35,400	94	1,158	3	178	0	410	1	0	0	210
Mainland	1,532,485	93	52,703	3	10,911	1	22,772	1	0	0	15,854
Zanzibar	16,237	95	954	2	0	0	0	0	518	3	17,041
National	1,548,722	93	53,657	3	10,911	1	22,772	1	518	2	32,895

15.4 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Plant Spacing by Source and Region During the 2002/03 Agriculture Year

Regions	Spacing						Total receiving advice	Total Number of households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other				
Dodoma	121,701	1,003	0	229	726	123,658	323,719	38	
Arusha	35,039	1,129	185	457	187	36,978	154,857	24	
Kilimanjaro	118,299	2,573	516	430	74	121,891	216,173	56	
Tanga	117,838	339	107	329	287	118,900	265,198	45	
Morogoro	57,281	2,033	248	745	123	60,430	280,748	23	
Pwani	43,371	207	357	713	160	44,787	141,530	32	
Dar es Salaam	10,829	94	0	185	61	11,270	20,394	55	
Lindi	23,738	187	0	315	0	24,240	153,173	16	
Mtwara	37,842	374	60	289	0	38,595	229,314	17	
Ruvuma	47,783	1,189	1,468	1,677	898	52,993	191,175	28	
Iringa	147,753	3,324	74	2,070	1,526	154,748	278,717	56	
Mbeya	120,188	4,592	1,298	4,580	5,573	136,232	372,844	37	
Binga	80,516	863	250	855	181	82,665	179,915	46	
Tabora	46,493	8,075	2,843	505	144	58,060	235,917	25	
Rukwa	21,080	2,610	213	384	135	24,402	172,261	14	
Kigoma	108,641	3,037	197	968	606	113,447	195,766	58	
Bhinyanga	93,030	2,489	458	99	32	96,106	377,857	25	
Kagera	52,731	3,045	450	579	1,147	57,947	383,277	16	
Mwanza	54,975	3,690	240	1,287	135	60,327	340,085	18	
Mara	53,899	1,430	188	134	134	55,785	188,203	30	
Manyara	31,713	881	121	66	154	32,935	154,194	21	
Malindi	1,424,838	43,143	9,270	16,903	12,242	1,506,397	4,805,315	31	
%	95	3	1	1	1	100			
Zanzibar	9,882	240	0	0	229	10,451	96,522	11	
National	1,434,821	43,383	9,270	16,903	12,472	1,516,848	4,901,837	31	

15.5 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Agro-Chemical Use by Source and Region During the 2002/03 Agriculture Year

Region	Use of Agrochemicals						Total receiving advice	Total Number of households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other				
Dodoma	54,710	3,181	94	229	144	58,358	323,719	18.0	
Arusha	21,054	838	112	529	167	22,702	154,857	14.7	
Kilimanjaro	79,469	4,033	423	309	161	84,395	216,173	39.0	
Tanga	55,501	643	0	21	107	56,371	265,198	21.3	
Morogoro	28,561	1,848	248	772	72	31,502	280,748	12.1	
Pwani	27,194	427	255	353	53	28,271	141,530	20.0	
Dar es Salaam	5,823	105	125	116	60	6,259	20,394	30.7	
Lindi	8,828	183	69	125	195	9,400	153,173	6.1	
Mtwara	21,842	445	334	403	0	23,024	229,314	10.0	
Ruvuma	33,246	1,703	1,580	775	66	37,383	191,175	19.6	
Iringa	98,108	7,307	157	1,774	1,281	108,627	278,717	39.0	
Mbeya	69,895	7,197	2,592	3,224	4,200	87,109	372,844	23.4	
Binga	42,776	538	146	0	398	43,958	179,915	24.4	
Tabora	25,987	5,708	1,483	384	829	38,471	235,917	16.3	
Rukwa	11,825	1,767	329	149	0	14,060	172,261	6.2	
Kigoma	59,500	3,869	195	577	150	64,400	195,766	32.9	
Bhinyanga	87,599	1,966	302	273	0	70,230	377,857	18.6	
Kagera	19,083	2,237	0	129	600	22,049	383,277	6.2	
Mwanza	32,494	3,037	102	354	0	35,988	340,085	10.6	
Mara	26,324	1,173	0	117	0	27,614	188,203	14.7	
Manyara	11,855	147	0	41	0	12,143	154,194	7.9	
Malindi	802,038	52,561	6,535	10,663	6,546	882,343	4,805,315	18.4	
%	90.9	6.0	1.0	1.2	1.0	100.0			
Zanzibar	5,317	0	0	0	66	5,404	96,522	6	
National	807,366	52,561	6,535	10,663	6,632	887,747	4,901,837	18	

15.6 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Erosion Control by Source and Region During the 2002/03 Agriculture Year

Regions	Erosion Control					Total receiving advice	Total Number of households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other			
Dodoma	65,139	4,364	197	229	514	70,443	323,719	21.8
Anusha	25,321	1,501	112	112	72	27,119	154,857	17.5
Kilimanjaro	78,566	8,398	0	420	0	86,984	216,173	39.5
Tanga	64,130	4,197	0	145	107	68,579	285,198	25.9
Morogoro	13,300	3,331	258	114	0	17,003	280,748	6.5
Pwani	15,155	823	20	143	0	16,142	141,530	11.4
Dar es Salaam	3,773	17	29	145	0	3,963	20,394	19.4
Lindi	2,067	87	0	0	0	2,154	153,173	1.4
Mtwara	8,509	194	0	0	0	8,703	229,314	2.9
Ruvuma	17,287	475	198	719	188	18,869	191,175	9.9
Iringa	94,406	12,207	60	497	529	107,699	278,717	38.6
Mbeya	80,530	10,201	1,229	3,113	2,294	97,367	372,844	20.8
Singida	44,732	990	0	81	139	45,942	179,915	25.5
Tabora	13,703	2,862	378	102	53	17,096	235,917	7.2
Rukwa	10,110	678	195	116	0	11,099	172,281	6.4
Kigoma	53,352	8,754	394	589	239	61,326	195,785	31.3
Shinyanga	46,097	1,443	0	0	0	47,540	377,857	12.6
Kagera	25,995	3,974	171	281	883	31,083	353,277	8.8
Mwanza	25,219	9,137	254	708	0	35,316	340,085	11.5
Mara	19,887	3,565	0	133	0	23,585	188,203	12.5
Manyara	21,019	401	57	0	57	21,533	154,194	14.0
Mainland	710,297	73,598	3,548	7,625	4,873	799,940	4,905,315	0.0
%	88.8	9.2	0.4	1.0	0.6	100.0		
Zanzibar	2,595	43	0	0	129	2,768	96,522	3
National	712,891	73,641	3,548	7,625	5,001	802,708	4,901,837	16

15.7 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Organic Fertiliser Use by Source and Region During the 2002/03 Agriculture Year

Region	Organic Fertiliser Use					Total receiving advice	Total Number of households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other			
Dodoma	101,619	2,410	98	229	685	105,062	323,719	32.5
Anusha	30,917	1,582	232	381	167	33,289	154,857	21.5
Kilimanjaro	97,819	3,955	593	0	0	102,367	216,173	47.4
Tanga	88,833	2,206	0	147	117	91,303	285,198	34.4
Morogoro	20,173	1,659	245	328	0	22,406	280,748	8.8
Pwani	23,285	688	258	276	20	24,507	141,530	17.3
Dar es Salaam	7,015	53	26	159	136	7,389	20,394	36.3
Lindi	4,861	0	0	0	0	4,861	153,173	3.2
Mtwara	21,137	721	0	125	0	21,882	229,314	9.6
Ruvuma	35,298	1,471	1,050	1,258	288	38,342	191,175	20.8
Iringa	104,800	10,321	266	1,895	1,389	118,652	278,717	42.8
Mbeya	80,842	8,658	1,511	5,094	4,633	100,738	372,844	27.0
Singida	73,137	463	245	975	432	75,241	179,915	41.8
Tabora	33,326	2,421	467	560	511	37,285	235,917	15.8
Rukwa	13,689	746	213	385	38	15,080	172,281	8.8
Kigoma	83,315	4,842	197	805	327	88,485	195,785	45.7
Shinyanga	70,719	2,035	488	467	0	73,709	377,857	19.5
Kagera	43,758	4,921	278	707	882	50,346	353,277	14.3
Mwanza	48,072	6,745	168	832	135	56,852	340,085	16.7
Mara	38,480	2,623	0	381	0	41,483	188,203	22.0
Manyara	18,732	351	69	0	84	19,236	154,194	12.5
Mainland	1,040,794	68,872	6,404	15,023	6,611	1,138,696	4,905,315	23.5
%	92.0	5.2	0.6	1.3	0.6	100.0		
Zanzibar	7,740	112	0	0	481	8,333	96,522	9
National	1,048,524	68,984	6,404	15,023	10,092	1,138,028	4,901,837	23

15.8 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Inorganic Fertiliser Use by Source and Region During the 2002/03 Agriculture Year

Regions	Inorganic Fertilizer Use							Total Number of households	% of total number of households	
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Not applicable	Total receiving advice			
Dodoma	28,808	7,058	340	428	449		80,258	97,337	323,719	30.1
Arusha	18,402	1,354	112	305	0		2,788	22,990	154,857	14.8
Kilimanjaro	78,473	3,152	704	125	0		9,487	82,951	216,173	43.0
Tanga	45,718	557	0	21	253		8,815	55,363	285,198	20.9
Morogoro	20,921	1,984	620	1,118	0		1,338	25,973	280,746	10.0
Pwani	19,358	173	145	287	27		898	20,887	141,530	14.6
Dar es Salaam	4,542	141	0	35	90		128	4,936	20,394	24.2
Lindi	4,935	87	0	192	0		312	5,227	153,173	3.4
Mtwara	17,126	658	95	0	96		1,134	19,110	229,314	8.3
Ruvuma	37,362	1,793	3,229	1,079	170		336	43,936	191,175	23.0
Iringa	90,248	3,317	387	1,801	719		4,300	100,771	278,717	36.2
Mbeya	75,171	7,429	3,168	5,389	6,825		4,000	105,559	372,844	28.3
Singida	19,273	1,011	302	0	0		518	21,104	179,915	11.7
Tabora	22,631	11,739	1,512	631	883		635	38,030	235,917	16.1
Rukwa	9,392	2,553	212	67	0		255	12,478	172,261	7.2
Kigoma	65,853	4,355	180	548	137		461	71,514	195,785	36.5
Shinyanga	34,583	2,723	80	160	32		1,116	38,673	377,857	10.2
Kagera	14,761	1,595	131	129	0		171	16,760	353,277	4.7
Mwanza	19,149	1,459	120	662	58		453	21,901	340,085	6.4
Mara	9,901	588	0	0	0		590	10,026	188,203	5.3
Manyara	6,497	582	12	12	70		193	7,378	154,194	4.8
Mainland	845,781	54,236	11,328	12,962	9,810		98,557	832,075	4,805,315	17.3
%	77.8	6.5	1.4	1.8	1.2		11.8	100.0		
Zanzibar	8,552	40	0	0	68		0	8,680	96,522	7
National	852,333	54,276	11,328	12,962	9,877		98,557	839,335	4,901,837	17

15.9 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Improved Seed by Source and Region During the 2002/03 Agriculture Year

Region	Use of Improved Seed							Total Number of households	% of total number of households	
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Not applicable	Total receiving advice			
Dodoma	91,470	3,903	0	229	779		20,574	115,965	323,719	36.1
Arusha	27,890	1,948	473	603	167		1,807	32,886	154,857	21.2
Kilimanjaro	107,310	4,815	1,291	71	0		3,840	117,296	216,173	54.3
Tanga	94,180	1,341	0	257	239		2,924	98,942	285,198	37.3
Morogoro	37,528	1,966	11	752	77		1,707	41,941	280,746	16.1
Pwani	30,626	1,119	276	254	47		808	33,127	141,530	23.4
Dar es Salaam	9,307	90	0	144	142		365	10,048	20,394	49.3
Lindi	13,777	116	0	184	86		134	14,306	153,173	9.3
Mtwara	22,818	1,017	175	0	0		865	24,875	229,314	10.8
Ruvuma	29,638	1,735	1,101	423	154		265	33,316	191,175	17.4
Iringa	105,713	8,450	686	1,284	961		3,226	118,327	278,717	42.6
Mbeya	79,151	7,448	2,803	2,719	2,818		5,652	100,582	372,844	27.0
Singida	60,534	1,053	321	1,950	298		1,404	65,559	179,915	36.4
Tabora	30,207	10,018	1,247	450	636		568	43,126	235,917	18.3
Rukwa	16,557	2,623	115	78	0		323	19,696	172,261	11.4
Kigoma	67,070	5,464	197	1,358	192		913	75,185	195,785	38.4
Shinyanga	72,213	2,509	275	380	53		1,242	76,993	377,857	20.4
Kagera	35,788	3,839	283	425	256		609	41,163	353,277	11.7
Mwanza	51,464	4,786	848	1,289	135		827	59,360	340,085	17.5
Mara	42,282	1,503	108	0	0		371	44,364	188,203	23.6
Manyara	22,263	1,131	183	365	83		593	24,515	154,194	16.0
Mainland	1,047,889	65,076	10,352	13,235	7,145		48,014	1,182,711	4,805,315	24.8
%	87.9	5.5	0.9	1.1	0.6		4.1	100.0		
Zanzibar	8,988	198	0	0	219		0	7,403	96,522	8
National	1,054,877	65,272	10,352	13,235	7,364		48,014	1,200,114	4,901,837	24

15.10 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Mechanisation by Source and Region During the 2002/03 Agriculture Year

Regions	Mechanisation / LBT					Total receiving advice	Total Number of households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other			
Dodoma	36,809	5,693	195	330	597	43,625	323,719	13
Arusha	13,362	1,695	859	488	0	16,404	154,857	11
Kilimanjaro	33,095	2,636	3,473	114	119	39,435	216,173	18
Tanga	19,073	280	0	235	302	19,890	265,198	8
Morogoro	20,104	830	380	1,470	144	22,928	260,748	9
Pwani	12,306	571	47	85	72	13,081	141,530	9
Dar es Salaam	903	28	0	0	0	930	20,394	5
Lindi	1,967	0	0	0	0	1,967	153,173	1
Mtwara	7,630	0	0	0	99	7,729	229,314	3
Ruvuma	6,547	257	72	182	0	7,058	191,175	4
Iringa	19,770	1,100	479	385	2,244	23,968	278,717	9
Mbeya	14,938	1,840	109	420	171	17,478	372,844	5
Singida	14,277	594	0	0	0	14,872	179,915	8
Tabora	3,966	124	0	148	90	4,285	235,917	2
Rufawa	2,113	105	0	0	0	2,218	172,261	1
Kigoma	18,548	394	83	149	0	19,174	195,765	10
Shinyanga	13,914	319	179	119	0	14,531	377,857	4
Kagera	2,799	578	0	0	0	3,377	353,277	1
Mwanza	4,822	582	0	293	0	5,507	340,085	2
Mara	2,363	134	0	0	0	2,497	188,203	1
Manyara	8,469	886	141	394	108	9,958	154,184	6
Total	257,537	18,636	8,019	4,780	3,905	290,876	4,805,315	6
%	89	6	2	2	1	100		
Zanzibar	5,835	6	0	0	47	5,888	96,522	6
National	263,372	18,642	8,019	4,780	3,952	296,764	4,901,837	13

15.11 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Irrigation Technology by Source and Region During the 2002/03 Agriculture Year

Region	Irrigation Technology					Total receiving advice	Total Number of households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other			
Dodoma	28,298	5,202	294	889	224	34,815	323,719	11
Arusha	12,485	1,062	353	189	187	14,264	154,857	9
Kilimanjaro	42,784	5,898	388	889	191	49,888	216,173	23
Tanga	50,340	1,336	0	0	0	51,674	265,198	19
Morogoro	17,305	1,649	813	977	77	20,821	260,748	8
Pwani	14,187	281	145	179	0	14,790	141,530	10
Dar es Salaam	2,070	73	0	68	61	2,270	20,394	11
Lindi	1,836	0	0	29	0	1,864	153,173	1
Mtwara	3,883	0	0	0	102	4,026	229,314	2
Ruvuma	18,228	200	124	501	241	19,292	191,175	10
Iringa	39,047	2,880	157	1,050	2,898	46,032	278,717	17
Mbeya	29,233	2,707	902	2,294	1,081	36,197	372,844	10
Singida	16,377	1,116	228	393	288	18,399	179,915	10
Tabora	10,128	1,187	0	360	134	11,799	235,917	5
Rufawa	5,840	828	78	253	35	6,834	172,261	4
Kigoma	38,429	1,497	197	384	0	38,509	195,765	20
Shinyanga	28,812	543	0	179	32	27,585	377,857	7
Kagera	9,298	802	0	0	171	10,289	353,277	3
Mwanza	18,998	1,367	231	511	58	19,132	340,085	6
Mara	8,089	1,059	0	0	0	7,148	188,203	4
Manyara	5,023	883	0	0	98	5,784	154,184	4
Total	392,321	30,135	3,690	8,708	5,898	440,752	4,805,315	9
%	89	7	1	2	1	100		
Zanzibar	2,131	62	0	0	67	2,280	96,522	4
National	394,452	30,197	3,690	8,708	5,964	443,011	4,901,837	13

15.12 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Crop Storage by Source and Region During the 2002/03 Agriculture Year

Regions	Crop Storage						Total receiving advice	Total Number of households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other				
Dodoma	94,162	2,534	98	101	1,028	97,923	323,719	30.2	
Arusha	25,710	1,587	112	112	263	27,785	154,857	17.9	
Kilimanjaro	88,882	3,184	553	275	199	93,093	216,173	43.1	
Tanga	96,290	701	0	253	301	96,545	285,198	36.4	
Morogoro	39,173	1,623	117	245	111	41,269	280,748	15.8	
Pwani	22,413	108	79	35	82	22,718	141,830	16.1	
Dar es Salaam	3,765	92	19	129	160	4,164	20,394	20.4	
Lindi	9,611	29	0	67	255	9,962	153,173	6.5	
Mtwara	17,840	181	95	248	193	18,537	229,314	8.1	
Ruvuma	28,910	424	339	335	735	30,744	191,175	16.1	
Ifinga	101,337	8,593	206	1,195	3,516	114,847	278,717	41.2	
Mbeya	86,231	5,161	1,454	6,142	8,584	107,572	372,844	28.9	
Singida	64,491	989	305	1,595	348	67,708	179,915	37.6	
Tabora	32,104	4,373	758	1,298	433	38,966	235,917	16.5	
Rukwa	19,125	595	187	199	0	20,106	172,261	11.7	
Kigoma	83,825	4,288	280	1,682	311	90,387	195,765	48.2	
Shinyanga	65,082	1,565	275	545	64	67,930	377,857	18.0	
Kagera	27,989	1,622	149	333	452	30,545	353,277	8.6	
Mwanza	39,563	1,408	124	614	193	41,901	340,085	12.3	
Mara	30,515	535	0	349	302	31,701	188,203	16.8	
Manyara	21,448	908	120	41	70	22,586	154,194	14.6	
Mainland	997,465	40,857	5,271	15,804	17,599	1,076,998	4,805,315	22.4	
%	92.8	3.8	0.5	1.5	1.8	100.0			
Zanzibar	2,108	125	0	0	181	2,414	96,522	15	
National	999,573	40,982	5,271	15,804	17,780	1,079,410	4,901,837	37	

15.13 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Vermin Control by Source and Region During the 2002/03 Agriculture Year

Region	Vermin Control						Total receiving advice	Total Number of households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other				
Dodoma	62,284	2,329	0	229	1,130	65,972	323,719	20.4	
Arusha	10,496	1,008	185	328	0	11,977	154,857	7.7	
Kilimanjaro	38,084	1,737	212	555	650	41,217	216,173	19.1	
Tanga	57,417	735	0	498	429	59,079	285,198	22.3	
Morogoro	22,348	1,630	317	858	149	25,300	280,748	9.7	
Pwani	30,393	143	0	738	0	31,245	141,830	22.1	
Dar es Salaam	3,205	27	0	141	29	3,401	20,394	16.7	
Lindi	11,874	58	0	192	0	12,124	153,173	7.9	
Mtwara	11,321	0	0	105	105	11,530	229,314	5.0	
Ruvuma	16,952	298	340	418	231	18,247	191,175	9.5	
Ifinga	45,288	4,586	219	131	3,252	53,475	278,717	19.2	
Mbeya	44,010	1,026	404	5,214	807	51,461	372,844	13.8	
Singida	40,383	389	0	65	159	40,975	179,915	22.8	
Tabora	11,805	1,230	202	572	0	13,810	235,917	5.9	
Rukwa	5,225	153	199	334	0	5,911	172,261	3.4	
Kigoma	43,556	1,885	197	3,042	195	48,874	195,765	25.0	
Shinyanga	33,052	620	311	108	32	34,133	377,857	9.0	
Kagera	13,509	1,439	171	490	171	15,880	353,277	4.5	
Mwanza	20,937	989	489	3,582	306	26,302	340,085	7.7	
Mara	12,582	205	0	349	0	13,136	188,203	7.0	
Manyara	6,770	318	0	123	409	7,619	154,194	4.9	
Mainland	541,519	20,782	3,246	18,071	8,053	591,670	4,805,315	12.3	
%	91.5	3.5	0.5	3.1	1.4	100.0			
Zanzibar	1,736	48	0	0	33	1,815	96,522	5	
National	543,255	20,827	3,246	18,071	8,086	593,485	4,901,837	17	

15.14 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Agro Processing by Source and Region During the 2002/03 Agriculture Year

Regions	Agro-processing						Total receiving advice	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Total		
Dodoma	51,587	3,625	0	350	1,520	57,062	323,710	17.8
Arusha	12,118	762	185	487	117	13,669	154,857	8.8
Kilimanjaro	52,720	3,277	1,139	660	759	58,778	218,173	27.2
Tanga	68,640	684	0	107	643	70,176	288,198	26.5
Morogoro	18,661	916	683	611	111	20,882	280,748	8.0
Pwani	14,221	867	0	0	170	15,267	141,630	10.8
Dar es Salaam	2,236	0	19	67	274	2,886	20,394	12.7
Lindi	2,714	0	0	96	54	2,864	153,173	1.9
Mtwara	5,026	162	0	97	0	5,284	228,314	2.3
Ruvuma	17,787	224	828	332	379	18,349	191,175	10.1
Iringa	44,837	7,658	904	880	4,799	58,179	278,717	21.2
Mbeya	55,838	5,104	1,591	6,268	8,700	77,291	372,844	20.7
Singida	39,380	579	526	2,710	866	44,161	179,915	24.5
Tabora	10,380	1,194	260	3,263	536	15,653	235,917	6.5
Rukwa	6,790	265	0	0	136	7,161	172,261	4.2
Kigoma	53,780	1,078	320	755	156	56,068	195,765	28.6
Shinyanga	40,464	1,285	0	433	0	42,172	377,857	11.2
Kagera	11,337	1,610	446	320	0	14,013	353,277	4.0
Mwanza	23,550	1,324	130	3,223	306	28,533	340,065	8.4
Mara	16,281	884	0	487	694	18,306	188,203	9.7
Manyara	5,913	360	12	58	203	7,457	154,194	4.8
Total	555,233	32,000	6,754	21,411	20,521	635,918	4,805,315	0.0
%	87.3	5.0	1.1	3.4	3.2	100.0		
Zanzibar	1,243	46	0	0	77	1,367	96,522	5
National	556,476	32,046	6,754	21,411	20,598	637,285	4,901,837	5

15.15 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Agro-Forestry by Source and Region During the 2002/03 Agriculture Year

Region	Agro-forestry						Total receiving advice	Total Number of households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Total			
Dodoma	37,057	6,213	0	390	1,226	45,826	323,719	14.5	
Arusha	16,712	1,174	186	359	0	18,428	154,857	11.9	
Kilimanjaro	55,349	4,682	667	467	362	64,318	218,173	29.8	
Tanga	49,780	3,653	107	203	0	53,624	288,198	20.2	
Morogoro	9,794	1,613	121	117	125	11,769	280,748	4.6	
Pwani	12,324	1,733	180	36	0	14,272	141,630	10.1	
Dar es Salaam	2,722	197	0	109	23	3,049	20,394	14.9	
Lindi	1,575	35	0	0	0	1,610	153,173	1.1	
Mtwara	6,065	324	0	0	0	6,418	228,314	2.8	
Ruvuma	13,889	702	124	0	267	15,003	191,175	7.8	
Iringa	49,964	10,112	323	1,694	911	62,434	278,717	22.4	
Mbeya	33,409	4,825	390	1,488	1,232	41,344	372,844	11.1	
Singida	31,365	835	205	0	264	32,669	179,915	18.2	
Tabora	11,076	1,861	306	217	526	14,006	235,917	5.9	
Rukwa	5,168	823	255	289	133	6,568	172,261	3.9	
Kigoma	36,765	9,116	63	34	0	45,998	195,765	23.5	
Shinyanga	28,072	564	188	0	0	29,745	377,857	7.9	
Kagera	13,402	2,803	0	170	0	16,455	353,277	4.7	
Mwanza	13,855	14,097	0	116	193	28,261	340,065	8.3	
Mara	8,794	10,795	0	117	118	19,823	188,203	10.5	
Manyara	8,418	595	67	0	0	10,079	154,194	6.5	
Total	450,484	78,662	3,112	5,141	5,389	542,786	4,805,315	11.3	
%	83.0	14.5	0.6	0.8	1.0	100.0			
Zanzibar	1,014	46	0	0	22	1,082	96,522	7	
National	451,508	78,708	3,112	5,141	5,412	543,881	4,901,837	10	

15.16 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Bee Keeping by Source and Region During the 2002/03 Agriculture Year

Regions	Beekeeping						Total receiving advice	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Total		
Dodoma	19,818	4,875	0	323	1,271	28,088	323,719	8.1
Arusha	6,297	582	112	0	0	6,992	154,857	4.5
Kilimanjaro	4,039	3,353	0	281	0	7,673	218,173	3.5
Tanga	8,885	2,082	0	0	0	8,787	285,198	3.3
Morogoro	3,083	587	0	0	0	3,630	280,748	1.4
Pwani	3,361	385	0	0	0	3,746	141,530	2.6
Dar es Salaam	287	0	0	0	0	287	20,394	1.4
Lindi	214	28	0	29	0	271	153,173	0.2
Mtwara	2,054	0	0	0	99	2,153	229,314	0.9
Ruvuma	8,720	780	0	27	27	7,555	191,175	4.0
Idinga	13,108	10,970	277	133	0	24,488	278,717	8.8
Mbeya	8,487	1,241	0	113	178	9,999	372,844	2.7
Singida	8,182	1,331	78	125	0	9,696	179,915	5.4
Tabora	2,541	885	0	128	244	3,578	235,917	1.5
Rukwa	802	0	0	0	0	802	172,281	0.3
Kigoma	5,078	582	197	196	0	6,063	195,785	3.1
Shinyanga	3,917	210	0	0	0	4,127	377,857	1.1
Kagera	2,294	149	0	0	0	2,442	353,277	0.7
Mwanza	1,835	822	0	0	0	2,657	340,085	0.8
Mara	1,433	785	0	117	0	2,318	188,203	1.2
Manyara	2,114	430	0	0	0	2,544	154,194	1.7
Malindi	101,890	29,827	884	1,489	1,819	135,870	4,805,315	0.0
%	75.1	22.0	0.6	1.1	1.3	100.0		
Zanzibar	132	0	0	0	83	195	96,522	2
National	102,021	29,827	884	1,489	1,882	135,885	4,901,837	2

15.17 CROP EXTENSION: Number of Agriculture Households Receiving Advice on Fish Farming by Source and Region During the 2002/03 Agriculture Year

Region	Fish Farming						Total Number of households	% of total number of households
	Government	NGO / Development Project	Cooperative	Large Scale Farm	Other	Total		
Dodoma	11,058	3,509	0	224	715	15,506	323,719	4.9
Arusha	4,287	388	112	0	0	4,788	154,857	3.1
Kilimanjaro	5,118	4,434	0	80	0	9,632	218,173	4.5
Tanga	7,400	3,284	0	59	78	10,822	285,198	4.1
Morogoro	2,213	807	0	0	0	2,819	280,748	1.1
Pwani	3,027	208	47	0	0	3,279	141,530	2.3
Dar es Salaam	312	0	0	14	0	328	20,394	1.6
Lindi	423	0	0	0	0	423	153,173	0.3
Mtwara	745	159	0	0	99	1,002	229,314	0.4
Ruvuma	7,419	798	74	89	100	8,481	191,175	4.4
Idinga	11,388	10,295	314	133	0	22,109	278,717	7.9
Mbeya	6,347	1,109	21	300	0	7,777	372,844	2.1
Singida	4,480	941	0	0	0	5,421	179,915	3.0
Tabora	1,353	728	124	125	0	2,328	235,917	1.0
Rukwa	241	0	0	0	0	241	172,281	0.1
Kigoma	3,482	2,894	0	0	0	6,175	195,785	3.2
Shinyanga	2,313	30	108	0	0	2,452	377,857	0.6
Kagera	1,831	488	0	0	0	2,099	353,277	0.6
Mwanza	794	239	0	0	0	1,032	340,085	0.3
Mara	1,885	1,214	0	0	0	3,099	188,203	1.6
Manyara	853	545	0	0	0	1,398	154,194	0.9
Malindi	78,748	32,044	800	1,005	991	111,588	4,805,315	2.3
%	88.8	28.7	0.7	0.9	0.9	100.0		
Zanzibar	23	0	0	0	28	51	96,522	1
National	78,771	32,044	800	1,005	1,019	111,639	4,901,837	3

15.18 CROP EXTENSION: Number of Agriculture Households Receiving and Adopting Extension Messages by Type of Message and Region (Part 1) During the 2002/03 Agriculture Year

Region	Spacing			Use of Agrochemicals			Erosion Control		
	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Dodoma	123,833	107,366	87	54,390	15,446	28	68,245	29,129	43
Arusha	37,043	32,202	87	21,984	15,806	72	27,316	15,872	58
Kilimanjaro	121,927	114,025	94	87,112	58,180	67	84,954	67,300	79
Tanga	119,130	109,047	92	55,156	8,817	16	67,925	21,958	32
Morogoro	60,406	54,057	89	30,739	19,024	62	16,900	7,939	47
Pwani	44,577	40,322	90	27,732	11,219	40	14,906	4,278	29
Dar es Salaam	11,226	10,280	92	6,109	3,895	64	3,672	2,973	81
Lindi	24,346	22,749	93	8,952	6,730	75	1,829	1,739	95
Mtwara	38,751	35,954	93	22,892	14,360	63	6,098	1,967	32
Ruvuma	52,811	51,912	98	36,557	25,553	70	18,394	10,719	58
Iringa	155,290	142,784	92	108,765	80,078	74	107,826	67,074	63
Mbeya	135,502	131,543	97	84,903	50,346	59	75,436	49,781	66
Singida	82,511	76,516	93	43,633	13,556	31	45,573	27,026	59
Tabora	58,092	50,816	87	38,287	27,040	71	16,465	9,183	56
Rukwa	24,402	21,252	87	14,209	7,080	50	11,093	5,352	48
Kigoma	113,828	103,213	91	65,299	18,513	28	61,913	30,788	50
Shinyanga	96,382	81,330	84	68,920	41,663	60	46,957	25,207	54
Kagera	58,213	48,753	84	20,586	8,954	43	30,413	20,500	67
Mwanza	60,133	48,972	81	35,602	18,727	53	38,351	25,694	70
Mara	56,096	48,855	87	27,918	17,941	64	23,901	18,222	76
Manyara	32,889	29,473	90	12,019	6,346	53	21,834	12,538	57
Mainland	1,507,559	1,381,423	90	871,886	471,478	54	789,893	457,149	58
Zanzibar	10,451	8,810	84	5,404	2,284	42	2,766	1,726	62
National	1,518,010	1,370,233	90	877,290	473,762	54	792,659	458,874	58

15.19 CROP EXTENSION: Number of Agriculture Households Receiving and Adopting Extension Messages by Type of Message and Region (Part 2) During the 2002/03 Agriculture Year

Region	Organic Fertilizer Use			Inorganic Fertilizer Use			Use of Improved Seed		
	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Dodoma	108,885	57,887	54	27,857	4,801	18	101,817	44,020	43
Arusha	33,408	27,022	81	19,217	11,553	60	31,710	18,570	59
Kilimanjaro	103,005	93,635	91	84,840	51,831	61	113,889	92,711	81
Tanga	92,312	37,885	41	44,307	6,288	14	98,120	29,582	30
Morogoro	22,888	10,907	48	24,582	10,277	42	41,753	23,321	56
Pwani	24,040	8,272	34	19,327	3,197	17	32,583	12,797	39
Dar es Salaam	7,259	5,493	76	4,479	2,805	63	9,096	8,136	90
Lindi	4,383	1,778	41	4,732	1,901	40	14,388	8,306	58
Mtwara	21,471	5,771	27	17,599	2,845	16	24,274	8,908	37
Ruvuma	37,782	28,472	75	43,788	38,140	87	32,991	18,980	58
Iringa	118,870	74,101	62	95,148	88,783	93	116,411	67,271	58
Mbeya	98,970	82,333	83	101,009	70,298	70	94,544	39,042	41
Singida	75,750	54,484	72	18,139	7,832	43	66,335	28,223	43
Tabora	38,909	22,427	58	37,431	25,294	68	42,985	25,582	60
Rukwa	15,017	7,101	47	12,045	4,633	38	19,894	8,147	41
Kigoma	90,193	38,748	43	70,808	15,781	22	75,997	14,481	19
Shinyanga	74,332	45,821	62	38,748	18,387	47	77,447	48,310	62
Kagera	50,458	33,853	67	14,897	3,893	26	41,802	19,832	47
Mwanza	57,004	39,882	70	21,200	8,723	41	59,373	42,481	72
Mara	41,705	24,115	58	8,912	3,474	39	45,589	29,421	65
Manyara	18,893	12,102	64	6,989	1,835	27	24,582	11,599	47
Mainland	1,131,192	689,888	61	713,585	360,140	50	1,185,990	582,809	50
Zanzibar	8,333	5,117	61	6,860	3,100	45	7,403	4,440	60
National	1,139,525	694,995	61	720,445	363,240	50	1,193,393	587,249	50

15.20 CROP EXTENSION: Number of Agriculture Households Receiving and Adopting Extension Messages by Type of Message and Region (Part 3) During the 2002/03 Agriculture Year

Region	Mechanization / LST			Irrigation Technology			Crop Storage		
	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Dodoma	35,903	7,608	21	21,536	6,445	30	98,829	81,241	81
Arusha	15,531	7,187	46	13,721	7,589	55	28,222	22,671	80
Kilimanjaro	37,295	25,041	67	47,696	33,607	70	94,207	81,634	87
Tanga	17,344	2,408	14	47,974	15,413	32	97,163	77,002	79
Morogoro	22,569	12,452	55	19,655	11,360	58	41,281	37,004	92
Pwani	12,254	1,607	14	12,683	4,024	30	23,372	11,182	48
Dar es Salaam	596	783	128	1,782	1,702	101	4,024	3,307	82
Lindi	1,504	1,162	73	1,378	1,131	82	9,808	8,300	85
Mtwara	7,194	1,150	16	2,837	1,310	46	17,843	10,766	60
Ruvuma	5,832	1,415	24	17,821	10,275	58	30,963	29,139	94
Iringa	21,930	7,115	33	43,435	31,311	72	114,044	107,485	94
Mbeya	14,021	4,986	36	29,779	19,558	66	107,048	101,706	95
Binga	13,703	2,402	18	15,358	7,304	48	68,433	58,508	85
Tabora	3,800	415	11	11,177	8,460	76	38,918	33,064	87
Ruwa	1,833	255	14	6,160	2,755	45	20,071	17,880	89
Kigoma	19,713	309	2	38,397	8,024	26	90,957	82,074	91
Bhinyanga	12,816	7,133	56	24,173	11,987	50	69,095	58,115	84
Kagera	2,583	931	36	10,060	4,232	42	30,693	26,644	87
Mwanza	4,456	957	21	17,325	8,436	49	41,133	37,000	90
Mara	2,006	499	24	6,067	5,010	83	31,448	26,183	83
Manyara	8,788	5,385	61	4,760	3,871	81	22,283	21,112	95
Mainland	262,824	91,371	35	393,783	206,608	52	1,080,745	934,734	86
Zanzibar	5,888	2,736	46	2,260	1,121	50	2,414	2,019	84
National	15,657	8,121	52	7,020	4,892	71	24,707	23,131	94

15.21 CROP EXTENSION: Number of Agriculture Households Receiving and Adopting Extension Messages by Type of Message and Region (Part 4) During the 2002/03 Agriculture Year

Region	Vermin Control			Agro-progressing			Agro-forestry		
	Received	Adopted	%	Received	Adopted	%	Received	Adopted	%
Dodoma	65,536	49,716	76	55,166	43,393	79	42,878	15,008	35
Arusha	11,532	7,950	68	13,327	9,864	74	18,443	10,866	59
Kilimanjaro	41,090	33,575	82	58,165	54,575	94	65,947	51,485	78
Tanga	55,716	45,519	82	68,912	62,505	91	53,935	23,000	44
Morogoro	25,027	22,487	90	21,123	20,050	95	12,335	6,423	52
Pwani	31,379	24,200	77	14,280	8,268	58	13,482	5,650	42
Dar es Salaam	3,130	2,300	74	2,144	1,883	88	2,714	2,465	92
Lindi	12,202	9,312	76	2,725	2,724	100	1,449	785	54
Mtwara	10,989	7,571	69	4,219	3,757	89	6,360	1,407	22
Ruvuma	16,999	16,254	96	19,504	19,080	98	14,819	7,947	54
Iringa	50,932	40,832	80	57,448	52,815	92	62,915	33,606	54
Mbeya	44,736	42,700	95	75,577	72,519	96	37,795	25,113	66
Binga	40,155	36,971	92	42,937	41,389	96	33,218	14,037	42
Tabora	13,175	11,820	90	15,177	14,281	94	13,484	5,004	37
Ruwa	5,573	4,830	87	6,851	6,510	94	6,707	4,347	65
Kigoma	40,352	40,532	100	55,150	48,199	88	46,675	22,200	48
Bhinyanga	32,144	28,734	89	39,989	38,435	96	29,320	16,207	56
Kagera	15,569	9,628	61	13,299	11,732	88	16,703	12,785	77
Mwanza	25,036	20,575	82	27,983	27,986	100	28,162	19,002	68
Mara	11,705	11,520	98	17,901	17,491	98	19,653	14,806	75
Manyara	7,152	7,210	101	7,168	7,001	98	10,066	7,843	78
Mainland	569,420	474,364	83	619,023	567,168	92	537,080	301,304	56
Zanzibar	1,815	1,387	76	1,341	1,135	85	1,082	693	64
National	8,967	8,597	96	8,509	8,126	96	11,148	8,636	77




15.22 CROP EXTENSION: Number of Agriculture Households Receiving and Adopting Extension Messages by Type of Message and Region (Part 5) During the 2002/03 Agriculture Year

Region	Beekeeping			Fish Farming		
	Received	Adopted	%	Received	Adopted	%
Dodoma	10,568	6,072	36	7,090	2,489	31
Arusha	6,560	2,929	45	3,647	1,615	44
Kilimanjaro	6,780	3,352	49	8,643	4,373	51
Tanga	5,840	1,205	21	8,207	1,065	13
Morogoro	3,307	1,251	38	2,677	1,250	47
Pwani	3,338	650	19	2,627	575	22
Dar es Salaam	140	201	144	218	287	132
Lindi	271	237	87	509	177	35
Mtwara	1,460	490	33	740	487	66
Ruvuma	7,252	1,415	20	8,131	2,009	25
Iringa	22,838	4,803	21	21,674	4,066	19
Mbeya	7,617	2,944	39	5,800	1,903	32
Bingaia	8,608	4,100	47	5,216	495	9
Tabora	2,378	1,635	69	1,634	274	17
Rukwa	481	240	50	241	34	14
Kigoma	5,232	1,303	25	5,320	132	2
Ghinyanga	3,744	1,567	42	2,223	1,220	55
Kagera	1,925	263	14	2,116	170	8
Mwanza	1,775	461	26	453	188	41
Mara	1,581	384	24	2,103	664	32
Manysa	1,899	1,040	52	1,189	330	28
Mainland	112,819	37,440	33	91,487	23,843	26
Zanzibar	195	51	31	51	0	0
National	2,194	1,101	50	1,250	330	26

APPENDEIX III. CENSUS DATA COLLECTION INSTRUMENTS

**Smallholder Questionnaire
Community Questionnaire
Village Listing Forms**

APPENDEIX III. a Smallholder Questionnaire

United Republic of Tanzania																									
ACQ 1																									
CONFIDENTIAL																									
Small holder/Small Scale Farmer Questionnaire																									
Agriculture Sample Census																									
2002/2003																									
																									
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Executed by the Ministry of Agriculture and Food Security, Ministry of Water and Livestock Development, Ministry of Cooperatives and Marketing and National Bureau of Statistics																									

Definition and working page for page 1**General Definitions****Small holder hh/small scale farm:**

Should have between 25sq metres and 20 Hectares under production, and/or between 1 and 50 head of Cattle, and/or between 5 and 100 head of Sheep/Goats/Pigs, and/or between 50 and 1000 chickens/turkeys/ducks/rabbits.

Household: A group of people who occupy the whole or part of one or more housing units and makes joint provisions for food and/or other essentials for living.

Household Head: A person who is acknowledged by all other members of the household either by virtue of his age or standing in the household as the head. He/she should be a permanent resident of the house and he/she is the main person responsible for making decisions.

Agricultural Holding: This is an economic unit of agricultural production under single management. It consists of all livestock kept and all land used for agricultural production without regard to title. For the purpose of this survey, the agricultural holdings are restricted to those which meet one of the following conditions:

- Having or operated at least 25 sq meter of arable land
- Own or keep at least one head of cattle or five goats/sheep/pigs or fifty chicken/ducks/turkeys during the agricultural year 2002/03 (October 2002 to September 2003) .

Question Specific Definitions:**Type of Agriculture Holdings Codes (Q2.1):**

- **Crops only:** A holding is referred to be a crops only holding if it has cultivated a piece of land equal or exceeding 25 sq Meter. This also applies to all households owning or have kept livestock whose number does not qualify such household to be an agricultural holding (No cattle, less than 5 goats/sheep/pigs, less than 50 chickens/turkeys/ducks/rabbits)

- **Livestock only:** A holding is referred to be a Livestock only holding if it has exercised Livestock husbandry only during the agricultural year. The livestock can be herded in search for areas of pasture, but the core household unit always remains in the same place and the herder is rarely away from this place for long periods at a time.

- **Livestock pastoralism:** This refers to a household which practices livestock production as its major income generating activity and a means of subsistence, but moves from one place to another searching for water and pasture for the livestock. This movement usually involves long distances and in many cases the whole household unit moves with the livestock and they have no permanent place of residence.

For both livestock only and pastoralism , the number of livestock has to be at least 1 head of cattle, 5 goats/sheep/pigs or 50 chickens/turkeys/ ducks/rabbits. This also applies to all households owning or have cultivated a piece of land less than 25 sq meter, which does not qualify such household to be an agricultural holding.

- **Both crops and livestock:** A holding is referred to be a both crops and livestock if it has cultivated a piece of land equal or exceeding 25 sq meter and if such households is owning or have kept livestock whose number qualify such household to be an agricultural holding.

Important livelihood activities/source of income (Q 2.2):

- **Crop farming:** This refers to a household where crop production is its major means of subsistence and income generation.

- **Livestock farming/herding/pastoralism:** This refers to a household where livestock farming/herding is its major means of subsistence & income generation.

- **Off Farm Income** This refers to cash generated from activities other than from the households holding. This can be from permanent employment (eg government/other), temporary employment/labouring and includes cash generated from working on other farmers farms.

- **Remittances:** Assistance from family members who are not currently part of the household, or from a relative or family friend. This assistance is usually in the form of cash but it can also be in-kind (eg food, clothes, building material, farm tools, etc). The money is a gift and is not paid back.

- **Fishing/hunting and gathering** The use of non farmed resources for food eg fishing, hunting wildlife and gathering mushrooms, berries, wild honey roots from uncultivated land.

Procedures for Questions:**Q 2.1 Type of agriculture household/holding**

1. Using the options under the question classify the type of agriculture hh/holding

Note: If the hh had 1 acre of crops and raised 40 chickens during 2002/03 it is classified as "Crops only" as the number of chickens do not qualify the hh as keeping livestock.

Q 2.2 Important hh livelihood activities /source of income

1. Read the list in column 1 to the respondent and ask him to rank them in order of importance during the reference year.
2. In column 2 indicate the importance of each activity by placing "1" against the most important, "2" against the second most important, etc until you reach "7" the least important activity/source of income.

Note: You must attempt to fill in all boxes. Most households will carry out these activities to a greater or lesser degree. You will normally have to probe to get remittances.

If the hh did not undertake an activity during the 2002/2003 agriculture year then mark the appropriate box in column 2 with an 'X'.

3. For each activity/source of income assign a percentage. The enumerator should assist the respondent in assigning the percentage based on the information provided by the farmer.

4. After completing column 3 make sure the percentages add up to 100.

Note: It is not essential to be 100% accurate. This question is just to give the relative importance of the different items in general terms

1.0 IDENTIFICATION DETAILS		
1.1 Location		
S/N	Location Name	Codes
1.1.1	Region	<input type="text"/>
1.1.2	District	<input type="text"/>
1.1.3	Ward	<input type="text"/>
1.1.4	Village	<input type="text"/>
1.2 Details of the respondent and household head		
S/N		Codes
1.2.1	Name & number of local leader	<input type="text"/>
1.2.2	Name & number of household head	<input type="text"/>
1.2.3	Sex of household head (Male = 1, Female = 2)	<input type="text"/>
1.2.4	Name of respondent	/
1.2.5	Relationship of Respondent to Household Head	
<p><i>Relationship to household head codes (Q 1.2.5)</i> Head of Household.....1 Son/Daughter3 Grandson/Granddaughter5 Other (friend, employee, etc)...8 Spouse.....2 Father/Mother4 Other relative.....6</p>		

2.0 ACTIVITIES OF THE HOUSEHOLD			
2.1	Type of Agriculture Household	<input type="text"/>	
<p><i>Agriculture household codes(Q2.1)</i> Crops only.....1 Livestock only2 Pastoralist.....3 Crops and Livestock4</p>			
2.2 Rank the following livelihood activities/source of income of the household in order of importance			
S/N	Livelihood/source of income activity.	Rank in order of importance 1=most 7=least	How important are each of these activities expressed in percentage.
	(1)	(2)	(3)
2.2.1	Annual Crop farming	<input type="text"/>	<input type="text"/> %
2.2.2	Permanent crop farming	<input type="text"/>	<input type="text"/> %
2.2.3	Livestock keeping/herding	<input type="text"/>	<input type="text"/> %
2.2.4	Off Farm Income	<input type="text"/>	<input type="text"/> %
2.2.5	Remittances	<input type="text"/>	<input type="text"/> %
2.2.6	Fishing/hunting and gathering	<input type="text"/>	<input type="text"/> %
2.2.7	Tree/forest resources (eg honey, firewood, timber,etc)	<input type="text"/>	<input type="text"/> %
			<input type="text"/> %

Definition and working page for page 2**Question Specific Definitions:****Relation to head (Col 2):**

- **Household Head:** A person who is acknowledged by all other members of the household either by virtue of their age or standing as the household head.

- **Spouse:** Wife or Husband

Read and Write (Col 7):

- **Any other language:** Must be a written language.

For someone who can read and write in Swahili and any other language apart from English, the correct code is 1. For one who can read and write in English and any other language apart from Swahili the correct code is 2. Code 4 should only be used for another language but not English or Swahili

Education Level Reached (Col 9):

Indicate the highest level only. For those still attending school fill in the last year reached before the survey period. For example if a hh member is currently in standard 7 this year his highest grade reached is standard 6

Main Activity (Col 11):

- **Crop farming:** The persons main activity is crop production. This can be annual crops, vegetables, permanent crops or tree farming.

- **Livestock farming/herding:** The persons main activity is livestock farming/herding. The livestock can be herded in search for areas of pasture, but the core household unit always remains in the same place and the herder is rarely away from this place for long periods at a time. This category also includes fish farming but not fishing.

- **Livestock pastoralism:** The persons main activity is in moving livestock from one place to another searching for water and pasture for the livestock. This movement usually involves long distances and in many cases the whole household unit moves with the livestock and they may have no permanent place of residence.

- **Paid employment** - In full time employment earning a cash income

- **Government/Parastatal** - In full time employment for a government Ministry, Department or Board that is controlled by the Government

- **Private/NGO/Mission/etc** - employed by Non public/government organisation

- **Self employee** - works for own business for cash income

- **With employees** - Works for own business for cash and employs other workers

- **Without employees** - Works for own business for cash but does not employ other workers

- **Not working but available to work** - No productive activity but would like to have one.

- **Not working & nor available for work** - No productive activity and does not want to have one.

- **Unable to work** too old, too young, retired, disabled, etc

Off-farm Income (Col 12) - Income made from activities NOT on the HH's farming activities. This can be any off farm income generation activity and includes working for cash on other peoples farms.

Indicate whether each member was involved in an off farm income generating activity during 2002/03

Overview to section 3.0**Section 3.0 - Preliminary note**

1. Make sure that you define the hh properly to ensure that all the members of the hh are included. Make sure you stress that the hh is not just the hh heads direct family and that it includes other people living and eating together with the family.

2. If you notice that his house is large or you see many people around his house and he has only given you small number of hh members enquire further until you are sure that you have captured all the hh members.

Procedures for questions**Section 3.0 - Household Information**

1. For each household member complete columns 1, 2 & 3.

2. After completing columns 1, 2 & 3 for each household member go back to the first household member and complete the remaining columns for that member.

3. Repeat step 2 for the rest of the household members

IMPORTANT NOTE:

Cross check responses in columns 11 and 12 with section 2 especially in relation to:

off-farm income - if a hh member was involved in off farm income then there should be a response in question 2.2.4 and vice versa.

3.0 HOUSEHOLD INFORMATION
3.1 Give details of personal particulars of all household members beginning with the head of the household

S/N	Names of household members	Relationship to head	Sex M=1 F=2	Age (if age is above 99 years then write 99)	Survival of Parents		Not applicable for children under 5 years of age					
					Mother	Father	Read & Write	Education Status	Education Level reached	Involvement in farming	Main activity (for aged 5 & above)	Off-farm Income Yes=1 No=2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
3.1.1	1	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Relation to head (Col 2)

Head of household1

Spouse2

Son/daughter3

Father/Mother4

Grandson/granddaughter5

Other Relative6

Others8

Education Status (Col 8)

Attending School1

Completed2

Never attended School3

Involvement in farming activities (Col 10)

Works full time on farm ...1

Works part-time on farm 2

Rarely works on farm ...3

Never works on farm.....4

Main activity (Col 11)

Crop Farming01

Livestock Keeping/Herding...02

Livestock Pastoralism.....03

Fishing04

Paid employment:

- Government/parastatal ...05

- Private- NGO/mission/etc .06

Self employed (non farming)

- with employees07

- without employees08

Unpaid family helper (non agriculture)09

Not working & available.....10

Not working & unavailable...11

Housemaker/housewife12

Student13

Unable to work /too old/
Retired/sick/disabled).....14

Other98

Survival of Parents (Col 5 & 6)

Yes1

No2

Don't know3

Education Level Reached (Col 9)

Primary Education

Not of school ageNA

Under Standard One ... 00

Standard One01

Standard Two02

Standard Three03

Standard Four04

Standard Five05

Standard Six06

Standard Seven07

Standard Eight08

Training after Primary Education09

Pre Form One10

Secondary Education

Form one11

Form two12

Form three13

Form four14

Form five15

Form six16

Training after Secondary Education17

University & other tertiary Education18

Adult Education19

Not applicable99

Tanzania Agriculture Sample Census - 2003

Definition and working page for page 3**Question Specific Definitions****Section 4.1 - Land Access/Ownership**

Lease/Certificate of Ownership Area under lease/certificate of ownership refers to the area for which the household possesses a government issued leasehold title or certificate of ownership. The land will normally be officially surveyed and boundaries marked. This includes leased land bought from others where the lease/certificate of ownership has been transferred.

Customary Law: This refers to the land which the hh does not have an official government title to but its right of use is granted by the traditional leaders. This user-right agreement does not have to be granted directly by the village leaders as right of access may be passed on through heredity.

Bought: This refers to the area of customary land that has been bought from others. This land does not have an official title and therefore is not leasehold.

Rented from others: Land rented from others for Cash or for a fixed amount in crop produce (eg fixed number of bags at harvest).

Borrowed: Use granted by land owner free of charge. Land owner can either be a lease holder or has right of access through customary law.

Share Cropping: where the hh is permitted to use land which is then paid for from a percentage of the harvested crop.

Section 5.0 Land Use

- **Temporary crops:** are sown and harvested during the same agricultural year

- **Permanent crops:** are sown or planted once and then , they occupy the land for some years and need not to be replanted after each annual harvest. Permanent crops are mainly trees (e.g., apples) but also bushes and shrubs (e.g., berries), palms (e.g., dates), vines (e.g., grapes), herbaceous stems (e.g., bananas) and stemless plants (e.g., pineapples).

- **Mixed Crops:** This is a mixture of two or more crops planted together and mixed in the same plot/field. The two crops can either be randomly planted together or they can be planted in a particular pattern eg intercropping (1 row of maize and 1 row of beans). A field that has been divided into plots for different crops is not mixed. This is further subdivided into:

Permanent Mixed -two or more permanent crops grown together,
Permanent/Temporary Mix - permanent crop and annual crop together,
Temporary Mixed - two or more temporary, annual crops grown together.

- **Pasture Land:** This is an area of owned/allocated land which is set aside for livestock grazing. It can be improved pasture where the farmer has planted grass, applied fertilizer or applied other production increasing technologies to improve the grazing. Or it can be rough pasture.

- **Fallow:** This is the area of land that is normally used for crop production, but is not used for crop production during a year or a number of years. This is normally to allow for self generation of fertility/soil structure and is often an integral part of the crop rotation system.

- **Natural Bush:** Land which is considered productive but is not under cultivation or used extensively for livestock production and has naturally growing shrubs and trees.

- **Planted trees:** Land which is used for planting trees for poles or timber

- **Unusable:** Land that is known to be non-productive for agriculture purposes

Uncultivated Usable: This is land that was not used for reasons other than fallow. The reasons could be lack of inputs/money/rainfall/etc

Distance to fields (Q6.1):

-fields A field is a contiguous piece of land holding which the farmer considers as a single entity. The field may be divided into plots for growing different crops. A holding may consist of one or more fields in different localities.

Use of Communal Resources (Q6.2):

-Communal resources - refers to the place on which all individual households can have access to. It is not individually owned or controlled by one hh.

NOTE: The listed resources refers to communal resources and not those individually owned or part shared. The resource has to be freely accessible to the whole village

Overview to section 4**Section 4.0 - Preliminary note****Land Access/ Ownership**

Access/Ownership refers to the area utilized by the members of the household. This does not include communal land where the resources are shared between households. It does include official communal land that the hh has sole access to eg a plot for crop farming in the communal area.

Procedures for Questions**Section 4.0 - Land Ownership**

1. Ask the respondent if he knows the total area of land the household has sole access to. If he knows make a note in the calculation space

2. Ask the respondent the area of the different land ownership categories the household has sole access to (Q4.1.1 to 4.1.7) and record in the appropriate spaces.

3. Add up the area of the different categories of land and compare it with the total area obtained in step 1 (if the respondent provided the information).

4. If the total area is different find out which one is correct and make amendments where appropriate.

Section 5.0 - Land Use

1. Ask the respondent the area of the different land use categories the household has sole access to (Q5.1.1 to 5.1.12) and record in the appropriate spaces.

2. Add up the area of the different categories of land and compare it with the total area obtained in section 4.0. The total area should be the same.

3. If the total area is different find out which one is correct and make amendments where appropriate.

Section 6.2 Communal resources

Note: the code "Not available" means that the resource does not exist. The code "Not Used" means that the resource does exist but is not used by the hh.

4.0 LAND ACCESS/OWNERSHIP/TENURE			
4.1 Details of area "owned" by the household in the 2002/03 agricultural year. Give area reported by the respondent in "acres".		Area in Acres	
4.1.1 Area Leased/Certificate of ownership	<input type="text"/>	<input type="text"/>	4.2 Was all land available to the hh used during 2002/03 (Yes=1, No=2) <input type="checkbox"/>
4.1.2 Area owned under Customary Law	<input type="text"/>	<input type="text"/>	
4.1.3 Area Bought from others	<input type="text"/>	<input type="text"/>	4.3 Do you consider that you have sufficient land for the hh (Yes=1, No=2) <input type="checkbox"/>
4.1.4 Area Rented from others	<input type="text"/>	<input type="text"/>	
4.1.5 Area Borrowed from others	<input type="text"/>	<input type="text"/>	
4.1.6 Area Share -cropped from others	<input type="text"/>	<input type="text"/>	4.4 Do any female members of the hh own or have customary right to land (Yes=1, No=2) <input type="checkbox"/>
4.1.7 Area under Other forms of tenure	<input type="text"/>	<input type="text"/>	
Total area		<input type="text"/>	<input type="text"/>

5.0 LAND USE			
5.1 Area operated by household under different forms of land use during 2002/03 agriculture year. Give area reported by the respondent in "acres".		Area in Acres	
5.1.1 Area under Temporary Mono-crops	<input type="text"/>	<input type="text"/>	Calculation area
5.1.2 Area under Temporary Mixed crops (eg Maize & beans)	<input type="text"/>	<input type="text"/>	
5.1.3 Area under Permanent Mono-crops	<input type="text"/>	<input type="text"/>	
5.1.4 Area under Permanent Mixed crops (eg bananas, coffee & trees)	<input type="text"/>	<input type="text"/>	
5.1.5 Area under Permanent/temporary mix (eg bananas & maize)	<input type="text"/>	<input type="text"/>	
5.1.6 Area under Pasture	<input type="text"/>	<input type="text"/>	
5.1.7 Area under Fallow	<input type="text"/>	<input type="text"/>	
5.1.8 Area under Natural Bush	<input type="text"/>	<input type="text"/>	
5.1.9 Area under Planted Trees	<input type="text"/>	<input type="text"/>	
5.1.10 Area Rented to others	<input type="text"/>	<input type="text"/>	
5.1.11 Area Unusable	<input type="text"/>	<input type="text"/>	
5.1.12 Area of Uncultivated Usable land (excluding fallow)	<input type="text"/>	<input type="text"/>	
Total area		<input type="text"/>	<input type="text"/>

6.0 ACCESS AND USE OF RESOURCES

6.1 In the following table indicate the distance to the different fields used by the household

S/N	Field Number	Distance (in kilometres) from field to:			Distance codes less than 100m1 between 2 and 3km6 between 100 and 300m .2 between 3 and 5km7 between 300 and 500m .3 between 5 and 10 km ..8 between 500 and 1km...4 Over 10 km9 between 1 and 2km5
		Homestead	Nearst road	Nearst Market	
6.1.1	1	<input type="text"/>	<input type="text"/>	<input type="text"/>	
6.1.2	2	<input type="text"/>	<input type="text"/>	<input type="text"/>	
6.1.3	3	<input type="text"/>	<input type="text"/>	<input type="text"/>	

6.2 In the following table indicate the distance and use of the following communal resources

S/N	Communal Resource	Distance to resource (km)		Main hh use	Instructions for distance to resource (Col 2 and 3): If under 1km, write 0 If above 1km round to whole numbers eg 1.5km= 2km, 1.25km= 1km
		dry season	wet season		
	(1)	(2)	(3)	(4)	Main hh use (Col 4) Home or farm Consumption/utilisation.....1 Sold to Neighbours.....2 Sold to trader on the farm.....3 Sold to village market4 Sold to local wholesale market.....5 Sold to major wholesale market6 Not used by household.....7 Not available8
6.2.1	Water for humans	<input type="text"/>	<input type="text"/>	<input type="text"/>	
6.2.2	Water for livestock	<input type="text"/>	<input type="text"/>	<input type="text"/>	
6.2.3	Communal Grazing	<input type="text"/>	<input type="text"/>	<input type="text"/>	
6.2.4	Communal Firewood	<input type="text"/>	<input type="text"/>	<input type="text"/>	
6.2.5	Wood for Charcoal	<input type="text"/>	<input type="text"/>	<input type="text"/>	
6.2.6	Building poles	<input type="text"/>	<input type="text"/>	<input type="text"/>	
6.2.7	Forest for bees (honey)	<input type="text"/>	<input type="text"/>	<input type="text"/>	
6.2.8	Hunting (animal products)	<input type="text"/>	<input type="text"/>	<input type="text"/>	
6.2.9	Fishing (Fish)	<input type="text"/>	<input type="text"/>	<input type="text"/>	

Definitions and working page for page 4
Working table for the calculation of areas occupied by annual crop in a mixture

Crop mixture 1	Crop Name	Total area of mix (acre)	Ground area/plant (ACRE)	Total no. of plants	Total ground area of plants (ACRES)
Permanent crop 1			0.000		0
Permanent crop 2			0.000		0
Permanent crop 3			0.000		0
Permanent crop 4			0.000		0
Total Area of permanent crops in mix					

REMAINING AREA UNDER TEMPORARY CROPS

Temporary/permanent crop name 1	Temporary/permanent crop name 2	Temporary/permanent crop name 3	crop%	crop area
Total area check				

Instructions for calculating the area of mixed crops in a mixture.

- A. If the mixed crop is mixed annual only enter the total area of the field in the REMAINING AREA UNDER TEMPORARY CROPS, and go to step 1 of these instructions.
- B. If the mixed crop is mixed permanent and annual try to get the % occupied by the different crops and calculate the area of annual crops outlined in step 1. Otherwise use the number of trees method to calculate the area of annual crops in the mix, Step C.
- C. Number of trees method to calculate annual crop areas in a permanent-annual crop mix/ (from instructions for page 6) in column 'c'.
 - (i) list each of the permanent crops in column b and enter the ground area per acre for each permanent crop
 - (ii) obtain the number of permanent trees in the mix from the respondent and enter the number in column (iii) calculate the area occupied by each crop by multiplying column 'd' with column 'e' and sum these to obtain the total area of permanent crops in the mix.
 - (iv) subtract the total area of permanent crops in the mix from the total area of mix and enter the result in the area under temporary crops.
- D. Proceed to step 1 to calculate the area under each temporary crop.

1. Enter the name of each annual crop in the mix & estimate the percentage of each crop.
2. Using the percentages for each crop calculate the area of each crop from the REMAINING AREA UNDER TEMPORARY CROPS.
3. After completing this exercise for all fields, sum the area of each crop in the mix plus any monocrops and enter totals in section 7.1 col 6.
4. Obtain an estimate of the planned area for each crop and enter it in column 5.
5. If the area harvested is different to the area planned estimate the harvest area.
6. Once the quantity harvested is obtained calculate the Yield (Metric tonnes/acre) & compare the figure with the norms given in the crop codes box. If it is excessively different check the area and the amount harvested.

Land Clearing: Refers to removing trees/bush/grass prior to ploughing

Soil Preparation: Refers to the seedbed preparation (ploughing, harrowing, etc)

Planned Area: Area in Acres the household planned to plant before the season started

Actual Planted Area: The area in Acres that household was able to plant.

Area Harvested: The area in Acres that produced a harvest. This is the same as the area planted minus the area that was destroyed by major flood/pest/ animal/ets damage.

Temporary/Annual Crops:
Crops which are planted and harvested within a period of 12 months after which time the plants die. Most annual crops are planted and harvested on a seasonal basis.

Cash Crop Codes:

Code	Crop
50	Cotton
51	Tobacco
53	Pyrethrum
62	Jute
19	Seaweed

Crop Codes (Cereals / tubers/roots):

Code	Crop
11	Maize
12	Paddy
13	Sorghum
14	Burush Millet
15	Finger Millet
16	Wheat
17	Barley
22	Sweet Potatoes
23	Irish potatoes
24	Yams
25	Cocoyams
26	Onions
27	Ginger

Vegetable Codes:

Co	Crop
-d1	
86	Cabbage
87	Tomatoes
88	Spinach
89	Carrot
90	Chillies
91	Amaranths
92	Pumpkins
93	Cucumber
94	Egg Plant
95	Water Melon
96	Cauliflower

Crop Codes

Legumes Oil & fruit

Code	Crop
31	Beans
32	Cowpeas
33	Green gram
35	Chick peas
36	Bambara nuts
37	Field peas
41	Sunflower
42	Simsim
43	Groundnut
47	Soyabean
48	Caster seed

Smallholder Questionnaire

7.0 ANNUAL CROP AND VEGETABLE PRODUCTION - SHORT RAINY SEASON

Did the hh plant any crops during the Short Rainy season? (Yes = 1, No=2)

If the response is 'NO' give main reason Then go to section 7.2

Main Reason (Above) No rains...1 Rains came too late...2 Does not plant annual crops...3
 No money...4 Don't get Vufi season...5 Illness/social problems...6
 Has irrigation & does not follow season (give annual production in Mton)...7

For each crop planted during 2002/03 Short Rainy season provide the following information

Crop Name	Crop Code	Land Prep		Planting		Inputs		Harvesting & Storage		Marketing											
		Clear	Planned area (acres)	Actual Planted area (acres)	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
(U)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)		

Total Planned/Planted

Total area harvested

7.1.3 Main reason for difference between Area Planned and Area Planted

Land Clearing (Col 3)
 Mostly bush clearance...1
 Mostly hand slashing...2
 Mostly tractor slashing...3
 Mostly burning...4
 No land clearing...5

Improved seed Use (Col 7)
 all improved...1
 approx 3/4 improved...2
 approx 1/2 improved...3
 approx 1/4 improved...4
 less than 1/4 improved...5
 No improved seed used...6

Fertiliser codes (Col 9)
 Mostly farm Yard Manure...1
 Mostly Compost...2
 Mostly Inorganic fertilizer...3
 No fertilizer applied...4

Agrochemical use codes (Col 10, 11 & 12)
 Used on all crop...1
 Used on 3/4 of crop...2
 Used on 1/2 of crop...3
 Used on 1/4 of crop...4
 Used on less than 1/4...5
 Not used...6

Irrigation Use (Col 8)
 Used on all crop...1
 Used on 3/4 of crop...2
 Used on 1/2 of crop...3
 Used on 1/4 of crop...4
 Used on less than 1/4...5
 Not used...6

Soil preparation Method (Col 4)
 Mostly tractor ploughing...1
 Mostly Deen ploughing...2
 Mostly hand cultivation...3

Threshed/harvested (Col 13 & 14)
 By hand...1
 By draft animal...2
 By human powered tool...3
 By engine driven machine...4
 Not applicable...5

Main product (Col 16)
 Dry grain...1
 Green cob/green pod...2
 Green leaves & Stem...3
 Straw, dry stems etc...4
 Root, tuber, etc...5
 Flowering pyrethrum...6
 Fruit/bunch...7
 Other...8
 Not harvested yet...9

Mainly sold to (Col 20)
 Neighbour...01
 Local market/Trade store...02
 Secondary Market...03
 Teritary Market...04
 Marketing Coop...05
 Farmer Association...06
 Large-scale firm...07
 Trader at Farm...08
 Contract Farmer...09
 Did not sell...10
 Other...90

Reason for difference between area planned and harvested (Col 7.3)
 Drought...1
 Floods...2
 Access to land preparation tools (Draft animal/tractors)...3
 Credit...4
 Access to seed/planting material...5
 Access to other inputs...6
 Other...7
 Not applicable...8

Reason for difference between area planted and harvested (Col 7.4)
 Drought...1
 Rain/flood damage...2
 Fire damage...3
 Pest damage...4
 Animal damage...5
 Theft...6
 Illness/social problems...7
 Other...8
 Not applicable...9

Definitions and working page for page 5
Working table for the calculation of area occupied by annual crop in a mixture

Crop mixture 1	Crop Name	Total area of mix (acre)	Ground area/plant (ACRE)	Total no. of plants	Total ground area of plants (ACRES)
Permanent crop 1			0.000		0
Permanent crop 2			0.000		0
Permanent crop 3			0.000		0
Permanent crop 4			0.000		0

Total Area of permanent crops in mix: 0

REMAINING AREA UNDER TEMPORARY CROPS

Permanent/Temporary crop name 1	Permanent/Temporary crop name 2	Permanent/Temporary crop name 3	Temp crop's	Temp crop area
Total area check				

Land Clearing: Refers to removing trees/bush/grass prior to ploughing
Soil Preparation: Refers to the seedbed preparation (ploughing, harrowing, etc)
Planned Area: Area in Acres the household planned to plant before the season started
Actual Planted Area: The area in Acres that the household was able to plant.
Area Harvested: The area in Acres that the household got most of its production from. This is the same as the area planted minus the area that was destroyed by major flood/pest/ animal/ etc damage

Crop Codes (Cereals / tubers/roots):		Vegetable Codes:		Crop Codes Legumes Oil & fruits	
Code	Crop	Code	Crop	Code	Crop
11	Maize	27	Ginger	31	Beans
12	Paddy	86	Cabbage	32	Cowpeas
13	Sorghum	87	Tomatoes	33	Green gram
14	Bahush Millet	88	Spinach	35	Chick peas
15	Finger Millet	89	Carrot	36	Bambara nuts
16	Wheat	90	Chillies	37	Field peas
17	Barley	91	Amaranths	41	Sunflower
22	Sweet Potatoes	92	Pumpkins	42	Simsim
23	Irish potatoes	93	Cucumber	43	Groundnut
24	Yams	94	Egg Plant	47	Soybeans
25	Cocoyams	95	Water Melon	48	Caster seed
26	Onions	96	Cauliflower		
27	Ginger	20	Garlic		

Temporary/Annual Crop: Crops which are planted and harvested within a period of 12 months after which time the plants die. Most annual crops are planted and harvested on a seasonal basis.

Cash Crop Codes:

50	Cotton
51	Tobacco
53	Pyrethrum
62	Jute
19	Seaweed

Instructions for calculating the area of mixed crops in a mixture.
If the mixed crop is mixed annual only enter the total area of the field in the REMAINING AREA UNDER TEMPORARY CROPS, and go to step 1 of these instructions.
If the mixed crop is mixed permanent and annual try to get the % occupied by the different crops and calculate the area of annual crops outlined in step 1. Otherwise use the number of trees method to calculate the area of annual crops in the mix (Step C).

C. Number of trees method to calculate annual crop areas in a permanent annual crop mix
(i) list each of the permanent crops in column 'b' and enter the ground area per acre for each permanent crop (from instructions for page 6) in column 'd'.
(ii) obtain the number of permanent trees in the mix from the respondent and enter the number in column 'c'.
(iii) calculate the area occupied by each crop by multiplying column 'd' with column 'c' and sum these to obtain the total area of permanent crops in the mix.
(iv) subtract the total area of permanent crops in the mix from the total area of mix and enter the result in column 'e' under temporary crops.
(v) proceed to step 1 to calculate the area under each temporary crop.

Enter the name of each annual crop in the mix & estimate the percentage of each crop.
Using the percentages for each crop calculate the area of each crop from the REMAINING AREA UNDER TEMPORARY CROPS.

After completing this exercise for all fields, sum the area of each crop in the mix plus any monocrops and enter totals in section 2.1 col 6.

Obtain an estimate of the planned area for each crop and enter it in column 5.
If the area harvested is different to the area planted estimate the harvest area.
Once the quantity harvested is obtained calculate the Yield (Metric tonnes/acre) & compare the figure with norms given in the crop codes box. If it is excessively different check the area and the amount harvested.

REMAINING AREA UNDER TEMPORARY CROPS

Crop mixture 1	Crop Name	Total area of mix (acre)	Ground area/plant (ACRE)	Total no. of plants	Total ground area of plants (ACRES)
Permanent crop 1			0.000		0
Permanent crop 2			0.000		0
Permanent crop 3			0.000		0
Permanent crop 4			0.000		0

Total Area of permanent crops in mix: 0

REMAINING AREA UNDER TEMPORARY CROPS

Permanent/permanent crop name 1	Permanent/permanent crop name 2	Permanent/permanent crop name 3	Temp crop's	Temp crop area
Total area check				

Definitions and working page for page 5
Working table for the calculation of area occupied by annual crop in a mixture

Crop mixture 1	Crop Name	Total area of mix (acre)	Ground area/plant (ACRE)	Total no. of plants	Total ground area of plants (ACRES)
Permanent crop 1			0.000		0
Permanent crop 2			0.000		0
Permanent crop 3			0.000		0
Permanent crop 4			0.000		0

Total Area of permanent crops in mix: 0

REMAINING AREA UNDER TEMPORARY CROPS

Permanent/permanent crop name 1	Permanent/permanent crop name 2	Permanent/permanent crop name 3	Temp crop's	Temp crop area
Total area check				

Instructions for calculating the area of mixed crops in a mixture.
If the mixed crop is mixed annual only enter the total area of the field in the REMAINING AREA UNDER TEMPORARY CROPS, and go to step 1 of these instructions.
If the mixed crop is mixed permanent and annual try to get the % occupied by the different crops and calculate the area of annual crops outlined in step 1. Otherwise use the number of trees method to calculate the area of annual crops in the mix (Step C).

C. Number of trees method to calculate annual crop areas in a permanent annual crop mix
(i) list each of the permanent crops in column 'b' and enter the ground area per acre for each permanent crop (from instructions for page 6) in column 'd'.
(ii) obtain the number of permanent trees in the mix from the respondent and enter the number in column 'c'.
(iii) calculate the area occupied by each crop by multiplying column 'd' with column 'c' and sum these to obtain the total area of permanent crops in the mix.
(iv) subtract the total area of permanent crops in the mix from the total area of mix and enter the result in column 'e' under temporary crops.
(v) proceed to step 1 to calculate the area under each temporary crop.

Enter the name of each annual crop in the mix & estimate the percentage of each crop.
Using the percentages for each crop calculate the area of each crop from the REMAINING AREA UNDER TEMPORARY CROPS.

After completing this exercise for all fields, sum the area of each crop in the mix plus any monocrops and enter totals in section 2.1 col 6.

Obtain an estimate of the planned area for each crop and enter it in column 5.
If the area harvested is different to the area planted estimate the harvest area.
Once the quantity harvested is obtained calculate the Yield (Metric tonnes/acre) & compare the figure with norms given in the crop codes box. If it is excessively different check the area and the amount harvested.

7.2 ANNUAL CROP AND VEGETABLE PRODUCTION - LONG RAINY SEASON

7.2.1 Did the hb plant any crops during the LONG RAINY season? (Yes=1 No=2) Yes No If the response is 'NO' give main reason Then go to section 7.3

Main Reason (Above)/No rains....1 Rains came too late....2 **Does not plant annual crops.....3**
No money 4 Illness/social problems...5

7.2.2 For each crop planted during 2002/03 Long Rainy season provide the following information

Crop Name	Planting		Inputs								Harvesting & Storage			Marketing			
	Land Prep Code (1)	Planned area (acres) (3)	Soil prep Code (2)	% Inp-ared seed (7)	Inp-ot use (8)	Yer -lar use (9)	Bir -lar use (10)	Pln -lar use (11)	Pod -lar use (12)	How hairy coated (13)	How thru bed (14)	Area Harvested (acres) (15)	main prod code (16)	Quantity Harvested (kg) (17)	Quantity Stored (kg) (18)	Quantity sold (kg) (19)	moderly sold to (20)

7.2.3 Main reason for difference between Area Planned and Area Harvested Total Planned/Planted Total area harvested

Land Clearing (Col 3) Mostly bush clearance...1 Mostly hand slashing...2 Mostly tractor slashing...3 Mostly burning...4 No land clearing...5	Improved seed Use (Col 7) all improved...1 approx 3/4 improved...2 approx 1/2 improved...3 approx 1/4 improved...4 less than 1/4 improved...5 No improved seed used...6	Fertiliser codes (Col 9) Mostly Farm Yard Manure...1 Mostly Compost...2 Mostly inorganic fertiliser...3 No fertiliser applied...4	Threshed/harvested (Col 13 & 14) By hand...1 By draft animal...2 By human powered tool...3 By engine driven machine...4 Not applicable...5	Mostly sold to (Col 20) Neighbour...01 Local market/trade store...02 Secondary Market...03 Tertiary Market...04 Marketing Coop...05 Farmer Association...06 Large scale farm...07 Trader at Farm...08 Contract Farmer...09 Did not sell...10 Other...98
Soil preparation Method (Col 4) Mostly tractor ploughing...1 Mostly Oxen ploughing...2 Mostly Hand cultivation...3	irrigation Use (Col 8) Used on all crop...1 Used on 3/4 of crop...2 Used on 1/2 of crop...3 Used on 1/4 of crop...4 Used on less than 1/4...5 Not used...6	Agrochemical use codes (Col 10,11 & 12) Used on all crop...1 Used on 3/4 of crop...2 Used on half of crop...3 Used on 1/4 of crop...4 Used on less than 1/4...5 Not used...6	Main product (Col 16) Dry Grain...1 Green cob/green pod...2 Green leaves & Stem...3 Straw, dry stems etc...4 Root, rubber, etc...5 Flower or pyrethrum...6 Fruit/bunch...7 Others...8 Not harvested yet...9	Reason for difference between area planned and harvested (Col 2,3,4) Drought...1 Rain/flood damage...2 Fire damage...3 Pest damage...4 Animal damage...5 Theft...6 Illness/social problems...7 Other...8 Not applicable...9

Definitions and working page for page 6**Permanent Crop:**

Permanent crops: are sown or planted once and then, they occupy the land for some years and need not to be replanted after each annual harvest. Permanent crops are mainly trees (e.g., apples) but also bushes and shrubs (e.g., bamboo), palms (e.g., dates), vines (e.g., grapes), herbaceous stems (e.g., bananas) and stemless plants (e.g., pineapples).

Total number of plants:

This includes both mature harvestable plants and immature non harvestable plants.

Number of mature plants: This is the number of plants which bore harvest.**Instructions for Permanent crop mono stands and mixtures**

- A. For fields that are monocrop permanent, ONLY enter the area of plants in column 3.
- B. For fields that are mixed permanent, calculate the area of each crop based on the % occupied by each crop method (NOT using the number of trees method) and ONLY enter the area in column 4.
- C. For fields that are mixed permanent/annual either:
- ONLY enter the area in column 4 if the area of the permanent crop was based on the % occupied by each crop method

OR

- ONLY enter the number of trees in column 5 if the number of permanent crop plants was provided

Permanent crops (cilia):

Code	Crop	Ground area/plant
44	Palm Oil	0.00046
45	Coconut	0.00037
46	Cashewnut	0.00062

Permanent (Cash crops)

Code	Crop	Ground area/plant
53	Sisal	0.00012
54	Coffee	0.00049
55	Tea	0.00037
56	Cocoa	0.00049
57	Rubber	0.00099
58	Wattle	0.00099
59	Kapok	0.00124
60	Sugar Cane	0.00012
61	Cardamom	0.00049
63	Tamarind	0.00099
64	Cinnamon	0.00124
65	Nutmeg	0.00099
66	Clove	0.00074
18	Black Pepper	0.00037
34	Pigeon pea	0.00025
21	Cassava	0.00019
75	Pinapple	0.00006

Permanent Crops:

Code	Crop	Ground area/plant
70	Passion Fruit	0.00074
71	Banana	0.00037
72	Avocado	0.00099
73	Mango	0.00099
74	Papaw	0.00037
75	Orange	0.00074
76	Grapefruit	0.00074
77	Grapes	0.00012
78	Mandarin	0.00074
80	Gueva	0.00074
81	Plums	0.00074
82	Apples	0.00074
83	Pears	0.00074
84	Peaches	0.00074
85	Lime/Lemon	0.00074
88	Pomeio	0.00099
68	Jack fruit	0.00074
97	Durian	0.00074
98	Bilimbi	0.00074
99	Rambutan	0.00074
67	Bread fruit	0.00099
36	Malay apple	0.00074
39	Star fruit	0.00074

Working Area/calculation space

7.3 PERMANENT/PERENNIAL CROPS AND FRUIT TREE PRODUCTION

7.3.1 Does your household have any permanent/perennial crops or fruit trees 1
 (Yes=1, No=2)

7.3.2 For each of the permanent crops and fruit trees owned by the household provide the following information

Perm- ennial Crop Name (1)	Perennial crop Code (2)	Size of production unit		Inputs		Harvesting & Storage				Marketing							
		MONOCROP Area of Plants/ trees/Bushes in MONOCROP (acres) (3)	MIXED CROP Area covered by Permanent Crop in a MIXED CROP (acres) (4)	Number of permanent Plants/Area in a MIXED CROP (5)	Irrig- at- ion use (6)	Fert- il- izer use (7)	Fun- gic- ide use (8)	Pes- tic- ide use (9)	Area Harvested (acres) (11)	Number of mature plants (12)	Main prod- uct code (13)	Quantity harvested (kg) (14)	If no harvest give re- ason (15)	Quantity Stored (kg) (16)	Quantity sold (kg) (17)	mostly sold to (18)	

<p>Irrigation Use (Col 6) Used on all crop1 Used on most crop2 Used on half crop3 Used on small amount of crop4 Not used on crop5</p>	<p>Fertiliser codes (Col 7) Mostly Farm Yard Manure1 Mostly Compost2 Mostly Inorganic Fertiliser3 No Fertiliser applied4</p>	<p>Agrochemical use codes (Col 8, 9) 10 Used on all crop1 Used on 5/8 of crop2 Used on 1/2 of crop3 Used on 1/4 of crop4 Less than 1/4 of crop5 Not used6</p>	<p>Main product (Col 13) Dry Grain1 Green cob/green pod2 Green leaves & Stalk3 Stalk, dry stems etc4 Root, tuber, etc5 Flower6 Fruit/bunch7 Other8 Not harvested yet9</p>	<p>Main Reason for no harvest (Col 15) Crop not harvested yet1 Drought2 Rain/flood damage3 Fire damage4 Pest damage5 Animal damage6 Theft7 Other8 Not applicable9</p>	<p>Mainly sold to (Col 18) Neighbour01 Local market/trade store02 Secondary Market03 Tertiary Market04 Marketing Coops05 Farmer Association06 Large-scale farm07 Trader at farm08 Contract Farmer09 Did not sell10 Other08</p>
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Definition and working page for page 7					
Temporary/annual crop codes for section 7.4 col 2					
Crop Code	Crop Name	Secondary Product Question 7.4	Agroprocessing & bi-products		
			Main Products (Section 8.0)	Bi-product (Sect 8.0)	
			1	2	
11	Maize	Stems/straw	Flour	Bran	
12	Paddy	Stems/straw	polished rice grain	husk	
13	Sorghum	Stems/straw	flour		
14	Bulrush Millet	Stems/straw	flour		
15	Finger Millet	Stems/straw	flour		
16	Wheat	Stems/straw	flour	Bran	
17	Barley	Stems/straw	flour	Bran	
21	Cassava	Leaves/stems	flour		
22	Sweet Potatoes	Leaves			
23	Irish potatoes				
24	Yams				
25	Cocoyams				
26	Onions				
27	Ginger				
31	Beans	straw/stems			
32	Cowpeas	straw			
33	Green gram	straw			
34	Pigeon peas	stems			
35	Chick peas	straw			
36	Bambara nuts	straw/stems	oil	cake	
41	Sunflower	Stems	oil	Cake	
42	Sesim	straw	oil	Cake	
43	Groundnut	straw	oil	Cake	
47	Soya beans	straw	oil	Cake	
48	Caster seed	straw	oil	Cake	
75	Pineapple	J	juice		
50	Cotton	straw	fibre/seed	oil	cake
51	Tobacco				
53	Pyrethrum	straw	Insecticide		
62	Jute		fibre		
86	Cabbage				
87	Tomatoes				
88	Spinach				
89	Carrot				
90	Chillies	d	red powder		
91	Amarantha				
92	Pumpkins	leaves			
93	Cucumber				
94	Egg Plant				
95	Water Melon				
96	Cauliflower				
44	Oil Palm	leaves	oil outer	oil inner	cake
45	Coconut	leaves/husk	milk		
46	Cashewnut	Fruit	fruit juice	shell liquid	
52	Sisal	stems	fibre	oil	
54	Coffee	stems	beans	husks	
55	Tea	stems			
56	Cocoa	stems	cocoa	cocoa butter	
57	Rubber	stems			
58	Wattle	stems			
59	Kapok	stems			
60	Sugar Cane		sugar/juice	molasses	ethanol
61	Cardamom				
71	Banana	leaves/stems	Juice		
72	Avocado	stems			
73	Mango	stems	Juice		
74	Paw paw		Juice		
76	Orange	stems	Juice		
77	Grape fruit	stems	Juice		
78	Grapes	stems	Juice		
79	Mandarh	stems	Juice		
80	Guava	stems			
81	Plums	stems			
82	Apples	stems			
83	Pears	stems			
84	Pitches	stems			
85	Lime/Lemon	stems	Juice		

General Definition for Section 7.4

Secondary Products: Second most important product from a crop. Eg a household may consider the grain from maize as the primary product and the stems/straw as the secondary product.

Note: Secondary products are NOT the same as bi-products. By-products are the result of a processing activity and are dealt with in section 8.0.

Procedures for Questions

Q 7.6 Details of Secondary Products:

- From the list of crops in Q 7.1.2, 7.2.2 & 7.3.2, ask the respondent if the hh used any secondary products. List the crop names and codes in column 1 and 2 for those crops that the hh used secondary products.
- For the listed crops give details of the secondary products used.
- If no units were sold, enter "0" in columns 8 & 9.

Q 8.0 Agroprocessing & bi-products:

- From the list of crops in Q 7.1.2, 7.2.2 & 7.3.2, ask the respondent if the hh processed any of these crops during the 2002/03 agriculture year. List the crop names and codes in column 1 and 2 for those crops that were processed by the hh.
- For the listed crops give details of the secondary crops used.
- If no main product or bi-product was sold enter "0" in columns 8 & 14.
- If no bi-product was produced enter "0" in columns 10, 11, 12, 13 & 14.

Question Specific Definitions

Agroprocessing and bi-products (Q 8.2)
(Note: Agroprocessing refers to the processing of crops for hh utilisation and for sale)

Main Product (Col 5):
Main Product after processing. Eg for Paddy it may be the polished grain. For Maize it may be flour.

Bi-Product code (Col 11): is the secondary residue after processing, eg for rice it may be the husk. for maize it may be the bran.

Mainly used for (Col 5 & 11):
- Consumed by household can mean eaten or utilised in another way (eg by animals) by the hh.

7.4 Main use of Secondary Products

7.5 Did you use **Secondary Products** from any of your crops during the 2002/03 year. (Yes=1, No=2)

If the response is 'NO' go to section 8.0

7.6 List the **main crops with secondary products** and provide the following details:

S/N	Crop name	Crop Code	Secondary product	Prod code	Used for	Unit	Total no of Units	No of units sold	Total value of sold units (Tsh.)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7.6.1						
7.6.2						
7.6.3						
7.6.4						
7.6.5						
7.6.6						

Main product (Col 4)

Green leaves & Stem...1 Flower...4
 Straw, dry stems etc...2 Fruit...5
 Root, tuber, etc...3 Other...8

Mainly used for (Col 5)

Feeding to livestock...1 Consumed by hh...4
 Building material...2 Sold...5
 Fuel for cooking...3 Did not use...6

Unit (Col 6)

Loose Bundle/bunch...1 kg...5
 Compressed bunch/Bail...2 Stems...6
 Tin...3 Sack...7
 Bucket...4 Other...8

8.0 AGROPROCESSING AND BY-PRODUCTS

8.1 Did the household **process** any of the products harvested on the farm during 2002/03 (Yes=1, No=2)

If the response is 'NO' go to section 9.0

8.2 List the **main crops processed** and provide the following details:

S/N	Crop name	Crop Code	Proc-ess-ed	Main Prod-uct code	Used for	Unit	Quantity of main product	Quantity Sold	Where sold	By-Prod-uct code	Used for	Unit	Quantity of by-product	Quantity Sold
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
8.2.1													
8.2.2													
8.2.3													
8.2.4													
8.2.5													
8.2.6													

Processed (Col 3)

On farm by hand...1
 On farm by machine...2
 By neighbours machine...3
 By farmers association...4
 By Cooperative union...5
 By trader...6
 On Large scale farm...7
 By factory...9
 Other...8

Main product code (Col 4)

Flour/meal...1
 Grain...2
 Oil...3
 Juice...4
 Fiber...5
 Pulp...6
 Sheet...7
 Other...8

Used for (Col 5 & 11)

Household/human consumption...1
 Fuel for cooking...2
 Sale...3
 Animal consumption...4
 Did not use...5
 Other...8

Unit (Col 6 & 12)

Loose bundle/bunch...1
 Compressed bunch/bail...2
 Tin...3
 Bucket...4
 kg...5
 litre...6
 Other...8

Where sold (Col 9)

Neighbour...1
 Local market/trade store...2
 Secondary Market...3
 Marketing Coop...4
 Farmer Association...5
 Largescale farm...6
 Trader at farm...7
 Did not sell...8
 Other...8

By-product code (Col 10)

Bran...01
 Cake...02
 Husk...03
 Juice...04
 Fiber...05
 Pulp...06
 Oil...07
 Shell...08
 Other...98

Definition and working page for page 8	
<p>Question Specific definitions (Section 9.0) Crop Storage, Section 9</p> <p>Method of Storage (column 4)</p> <ul style="list-style-type: none"> - Locally made structure: The structures that have been inherited from their fore fathers - Improved locally made structure: Traditional structures that have been improved using modern technology. - Normal duration of storage: Often there are stored stocks from different seasons and different years. The normal duration refers to the number of months that the most of the crop is stored for. <p>Marketing problems Q 10.2 and 10.3 col 2:</p> <ul style="list-style-type: none"> - Farmer Association: A village or community based group of farmers who have formed an organisation to purchase inputs/sell/store their products in order to achieve a better price for their products. - Cooperative Union: Large inter-village /community organisation set up on a district/regional or national basis for providing inputs, marketing and storing farmers products. - Government Regulatory board: Government control body for setting prices and controlling quality of certain agriculture commodities. 	<p>Procedures for Questions</p> <p>Q 9.2 Details of Crop Storage:</p> <ol style="list-style-type: none"> 1. For the crops listed indicate if the household stored any during 2002/03 in column 2. 2. Check that the crops correspond to the crop lists in Q 7.1.2, 7.2.2 & 7.3.2. If there is a difference inquire on the reason why. It is possible that a crop was missed during the enumeration of these questions and if so make necessary amendments 3. For the listed crops give details of storage. <p>Q 10.2 Details on Crop Marketing:</p> <ol style="list-style-type: none"> 1. For each of the crops listed indicate the main problems in marketing during 2002/03 in column 2. 2. Check if the crops correspond to the crop lists list in Q 7.1.2, 7.2.2 & 7.3.2. If there is a difference inquire on the reason why. It is possible that a crop was missed during the enumeration of these questions and if so make necessary amendments <p>Q 10.3 Ranking of market problems:</p> <p>Rank in order of importance the 5 most important marketing problems from the codes in the Market Problems code box.</p>
<p>Working Area/calculation space</p>	

9.0 CROP STORAGE

9.1 Did the household store any crops during the 2002/03 agriculture year? (Yes =1, No=2)
 If the response is 'NO' go to section 10.0

9.2 For each of the listed crops provide the following details on storage

S/N	Crop Name	Stored Y=1 No=2	Current Quantity Stored (kg)	Method of Storage	Normal duration of storage	Main pur- -pose	Estimate Storage loss
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
9.2.1	Maize	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.2	Paddy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.3	Sorghum/Millet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.4	Beans, peas, etc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.5	Wheat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.6	Coffee	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.7	Cashewnut	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.8	Tobacco	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.9	Cotton	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.2.10	Groundnuts/bambara	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Main method of Storage (Col 4)
 In locally made traditional structure ..1
 In Improved locally made structure ..2
 In modern store3
 In Sacks/open drum4
 In airtight drum5
 Unprotected pile6
 Other8

Duration of Storage (Col 5)
 Less than 3 months1
 Between 3 and 6 months2
 Over 6 months3

Main purpose of storage (Col 6)
 Food for the household1
 To sell for higher price2
 seed for planting3
 Other8

Storage loss (Col 7)
 Little or no loss1
 Up to 1/4 loss2
 Between 1/4 and 1/2 loss ..3
 Over 1/2 loss4

10.0 MARKETING

10.1 Did the household sell any crops from the 2002/03 agriculture year? (Yes=1, No=2)
 (If the response is 'YES' or 'NO' go to section 10.2)

10.2 For each of the following crops what was the main marketing problem faced by the household during 02/03

Crop	Main problem	Crop	Main problem
(1)	(2)	(1)	(2)
10.2.1 Maize	<input type="checkbox"/>	10.2.9 Vegetables	<input type="checkbox"/>
10.2.2 Rice	<input type="checkbox"/>	10.2.10 Tree Fruits	<input type="checkbox"/>
10.2.3 Sorghum/millet	<input type="checkbox"/>	10.2.11 Cashewnut	<input type="checkbox"/>
10.2.4 Wheat	<input type="checkbox"/>	10.2.12 Cotton	<input type="checkbox"/>
10.2.5 Beans, peas etc	<input type="checkbox"/>	10.2.13 Tobacco	<input type="checkbox"/>
10.2.6 Cassava	<input type="checkbox"/>	10.2.14 Groundnuts/bambara	<input type="checkbox"/>
10.2.7 Bananas	<input type="checkbox"/>	10.2.15 Trees/timber/poles	<input type="checkbox"/>
10.2.8 Coffee	<input type="checkbox"/>	10.2.16 Fish	<input type="checkbox"/>

10.3 From the list of marketing problems below, for all produce rank the five most important problems

	1	2
10.3.1 Biggest problem	<input type="checkbox"/>	<input type="checkbox"/>
10.3.2 2nd problem	<input type="checkbox"/>	<input type="checkbox"/>
10.3.3 3rd problem	<input type="checkbox"/>	<input type="checkbox"/>
10.3.4 4th problem	<input type="checkbox"/>	<input type="checkbox"/>
10.3.5 5th problem	<input type="checkbox"/>	<input type="checkbox"/>

Market problems (Q10.2 & 10.3 (Col 2))
 Open market price too low01 Market too far05 Government Regulatory board problems09
 No transport02 Farmer association problems06 Lack of market information10
 Transport cost too high03 Cooperative Problems07 Other (specify)98
 No buyer04 Trade Union problems08 Not Applicable99

10.4 What was the main reason for not selling crops during 2002/03 year

Reason for not selling crops (Q10.4)
 Price too low1 Farmer association problems4 Government regulatory board problems7
 Production insufficient to sell2 Cooperative Problems5 Other (specify)8
 Market too far3 Trade Union problems6 Not Applicable9

Definition and working page for page 9	
Overview of Investment activities (Section 11.0)	
Investment activities:	
Investment activities refer to medium to long term farm development structures and projects. This can be irrigation structures, erosion and water harvesting structures or other permanent or semi-permanent investment made on the land that the household owns.	
Question Specific Definitions (Q 11.1)	
<p>Source of Irrigation Water (Col 1): The main source of water from which water is obtained for irrigation.</p> <p>Method of obtaining water (Col 2): The mechanism by which the water is extracted from the source,</p> <p>Application Method (Col 3): How the water is applied on the field.</p> <ul style="list-style-type: none"> - Flood - is the application of water down the slope of the land by means of gravity - Sprinkler - is the application of pressurised water through pipes. The water passes through a device which sprays the water onto the crop from above. <p>Irrigatable Area (Col 4): The area the irrigation system is designed to cover in acres.</p> <p>Area of irrigated land this year (Col 5): Area of land under irrigation during the 2002/03 agric year. This is the physical area and NOT the cumulative area of 2 or more croppings.</p>	<p>Q 11.1 Irrigation</p> <ol style="list-style-type: none"> 1. If the hh practices irrigation give details on the main source, main method of obtaining and applying water. 2. Cross check column 8, Q 7.1.2, 7.2.2 & 7.3.2 to check if irrigation was used on any crops.
Question Specific Definitions (Q 11.3)	
<p>Erosion control/water harvesting structure (Col 1)</p> <p>Terraces: Are structures constructed on the side of a hill to provide a level ground to plant crops. They are often used to trap water for paddy/fowland rice production.</p> <p>Erosion Control Bunds: These are banks of earth/stones built perpendicular to the slope to slow down water and prevent erosion. They are different to Terraces in that the soil behind the banks are not level.</p> <p>Gabions: A gabion is a wire mesh box filled with rocks/stones and used to control or prevent gully erosion</p> <p>Sandbags: Used to prevent or control gully erosion</p> <p>Tree belts/Wind breaks: A band of trees planted perpendicular to the prevailing wind whose main purpose is to slow down wind speed</p> <p>Water Harvesting bunds: A bank of earth constructed horizontal to the slope of the land to trap water. They are usually banana shaped.</p> <p>Dam: A bank of earth/material which traps river water to form a catchment of water behind it.</p>	<p>Q 11.3 erosion control/water harvesting</p> <ol style="list-style-type: none"> 1. Number of structures refers to the number of working/maintained structures and does not include derelict or irreparable structures. 2. Year of construction refers to the year that the structures were first constructed. It is not the year that the structures were last maintained.
Farm Inputs (Q 12.1.1 to 12.1.7)	
<p>Farm yard Manure: An organic fertiliser made on farm composed of animal dung</p> <p>Compost: An organic fertiliser made on farm from decomposed plant material</p> <p>Pesticide: Chemical used to either protect the plant from or kill insects, birds, molluscs, mites, etc attacking the plant</p> <p>Fungicide: is a chemical that is used to protect the plant from or control a fungal disease.</p> <p>Herbicide: A chemical used to control weeds.</p>	<p>Q 12.0 Farm Inputs</p> <ol style="list-style-type: none"> 1. Indicate in column 1 whether each of the inputs are used or not. 2. Complete cols 3, 4, 6, and 7 for inputs that are used and place '9' in column 5 (for not applicable). 3. Complete cols 5 & 7 for inputs not used. <p>NOTE: Cross check column 8, 7, 8 & 9, Q 7.1.2, 7.2.2 & 7.3.2 to check what inputs were used.</p>

11.0 ON-FARM INVESTMENT						
11.1 Does the household practice irrigation (Yes=1, No=2)					<input type="checkbox"/>	
<i>If the response is 'NO' go to section 11.3</i>						
S/N	Source of irrigation water	Method of obtaining water	Method of application	Irrigatable area (acres)	Area of irrigated land this year (acres)	
	(1)	(2)	(3)	(4)	(5)	
11.1.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> <input type="text"/> <input type="text"/> - <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
Source of irrigation water (Col 1) River1 Borehole5 Lake2 Canal6 Dam3 Tap Water7 Well4		Method of obtaining water (Col 2) Gravity1 motor pump Hand bucket2 Other8 Hand pump3		Method of application (Col 3) Flood1 Sprinkler2 water hose3 Bucket/watering can4		
11.2 Does the household have any erosion control/water harvesting facilities on their land (Yes=1, No=2)					<input type="checkbox"/>	
<i>If the response is 'NO' go to section 12.0</i>						
S/N	Type of erosion control/water harvesting structure	Number of structures	Year of construction	Type of erosion control/water harvesting structure	Number of structures	Year of construction
	(1)	(2)	(3)	(1)	(2)	(3)
11.2.1	Terraces	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	11.2.5	Tree belts	<input type="text"/> <input type="text"/>
11.2.2	Erosion control bunds	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	11.2.6	Water harvesting bunds	<input type="text"/> <input type="text"/>
11.2.3	Gabions/Sandbags	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	11.2.7	Drainage ditches	<input type="text"/> <input type="text"/>
11.2.4	Vetiver Grass	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	11.2.8	Dam	<input type="text"/> <input type="text"/>

12.0 ACCESS TO FARM INPUTS AND IMPLEMENTS									
12.1 Give details of farm inputs used during the 2002/03 agriculture year									
S/N	Input name	Used Yes=1 No=2	Source	Distance to Source	Source of Finance	Reason for not using	Quality of Input	Plan to use next year Yes =1, No=2	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
12.1.1	Chemical Fertiliser	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.1.2	Farm Yard Manure	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.1.3	Compost	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.1.4	Pesticide/fungicide	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.1.5	Herbicide	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.1.6	Improved Seeds	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.1.7	Other	<input type="checkbox"/>	<input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Source (Col 3) Cooperative01 Local farmers group02 Local market/Trade Store ...03 Secondary Market04 Development project05 Crop buyers06 Large scale farm07 Locally produced by hh08 Neighbour09 Other (specify)98 Not applicable99		Distance to source (Col 4) Less than 1 Km1 Between 1 and 3km2 between 3 and 10 km...3 Between 10 and 20 km ...4 20km and above5 not applicable9		Source of finance (Col 5) Sale of farm products .1 Other income generating activities2 Remittances3 Bank Loan/Credit.....4 produced on farm5 Other8 Not applicable9		Reason for not using (Col 6) Not available 1 Price too high 2 No money to buy3 Too much labour required.4 Do not know how to use.....5 Input is of no use6 Locally produced by hh7 Other8 Not applicable9		Quality of Input (Col 7) Excellent 1 Good2 Average3 Poor4 Does not work 5 not applicable...9	

Definition and working page for page 10	
<p>Question Specific Definitions (Q 12.2)</p> <p>Farm Implements (Col 1):</p> <p>Hand powered Sprayer: Knapsack or bicycle pump sprayer</p> <p>Reason for not using (Col 6): Be careful about using "too much labour required" as this code generally refers to hand hoes only. The codes for this should "NOT" be read out to the farmer as a prompt.</p> <p>Note: If remittance is given as the main source of finance check for a response to remittances in question 2.2.5</p>	<p>Procedures for questions</p> <p>Q 12.0 Farm Inputs</p> <ol style="list-style-type: none"> 1. Indicate in column 2 and 3 whether each of the implements were used or not. 2. Complete cols 4, 5, 6, and 8 for inputs that are used and place '9' in column 7 (for not applicable). 3. Complete cols 7 & 8 for inputs not used.
<p>Question Specific Definitions (Q 13.0)</p> <p>Section 13.0 Credit for Agriculture Purposes</p> <p>Credit is defined as finance in the form of cash or in-kind contributions (eg direct provision of inputs, machinery, livestock or other material) for the purpose of crop and livestock production whereby the value of the credit must be paid back to the borrower. The value of repayment may either be with interest or interest free.</p> <p>Credit may be paid back in the form of cash or agriculture produce.</p>	<p>Section 13.2 Source of agriculture credit</p> <p>If the farmer obtained credit from more than one source then use the columns "a", "b" and "c" for the different sources of credit. Start with the main source of credit in column "a".</p> <p>NOTE: Check for use of inputs in column 7, 8 & 9 of questions 7.1.2, 7.2.2 & 7.3.2.</p>
<p>Section 13.0 Credit for Agriculture Purposes</p> <p>Value of credit: is the amount in cash received from the borrower. If the credit was paid in-kind, estimate the value of this.</p> <p>Value of repayment: This is the amount to be repaid to the borrower and includes the principal amount (value of credit) plus any interest repayment. If the credit is paid back in agriculture produce, then the cash value of this must be estimated.</p> <p>Period of repayment: This is the time in months the borrower has given for full repayment.</p>	
<p>Working Area/calculation space</p>	

12.2 Give details of farm implements and assets used and owned by the household during 2002/03 agriculture year									
S/N	Equipment/Asset Name	Number		Used in 2002/03 Yes 1, No=2	Source of Equip-ment	Source of Fin-ance	Reason for not using	Plan to use next year Yes=1, No=2	
		Owned	rent-ed						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
12.2.1	Hand Hoe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.2.2	Hand Powered Sprayer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.2.3	Oxen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.2.4	Ox Plough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.2.5	Ox Seed Planter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.2.6	Ox Cart	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.2.7	Tractor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.2.8	Tractor Plough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.2.9	Tractor Harrow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12.2.10	Shellers/threshers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Source of equipment (Col 5) Neighbour.....1 Development project.....5 Cooperative.....2 Government.....6 Local farmers association.....3 Large scale farm.....7 market/Trade store.....4 Other (specify).....8		Source of finance (Col 6) Sale of farm products.....1 Other income generating activities.....2 Remittances.....3 Bank Loan.....4 Credit.....5 Other.....8 Not applicable.....9			Reason for not using (Col 7) Not available.....1 Price too high.....2 No money to buy/rent.....3 Too much labour required.....4 Equipment/Asset of no use...5 Other.....8 Not applicable.....9				
13.0 USE OF CREDIT FOR AGRICULTURE PURPOSES									
13.1	During the year 2002/03 did any of the hh members borrow money for agriculture (Yes = 1, No = 2)							<input type="checkbox"/>	<input type="checkbox"/>
<i>(if the response is 'NO' go to section 13.3)</i>									
13.2	Give details of the credit obtained during the agricultural year 2002/03 <i>(if the credit was provided in kind, for example by the provision of inputs, then estimate the value in 13.2.9)</i>								
	use codes to indicate source	Source "a"	Source "b"	Source "c"					
	Provided to Male = 1, Female 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
		tick the boxes below to indicate the use of the credit	tick the boxes below to indicate the use of the credit	tick the boxes below to indicate the use of credit					
13.2.1	Labour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
13.2.2	Seeds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
13.2.3	Fertilisers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
13.2.4	Agrochemicals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
13.2.5	Tools/equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
13.2.6	Irrigation structures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
13.2.7	Livestock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
13.2.8	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
13.2.9	Value of Credit (Tsh)	<input type="text"/>	<input type="text"/>	<input type="text"/>					
13.2.10	Value of repayment (Tsh)	<input type="text"/>	<input type="text"/>	<input type="text"/>					
13.2.11	Period of repayment (months)	<input type="text"/>	<input type="text"/>	<input type="text"/>					
Source of credit (Q 13.2-a, b and c) Family, friend or relative...1 Commercial Bank.....2 Cooperative.....3 Savings & credit Soc.....4 Trader/trade store.....5 Private individual.....6 Religious Organisation/NGO/Project...7 Other (Specify).....8									
13.3	If the answer to question 13.1 above is 'NO' what is the reason for not using Credit?							<input type="checkbox"/>	<input type="checkbox"/>
Reason for not using credit (Q13.3) Not needed...1 Not available...2 Did not want to go into debt...3 Interest rate/cost too high...4 Did not know how to get credit...5 Difficult bureaucratic procedure...6 Credit granted too late...7 Other (specify)...8 Dont know about credit...									

Definition and working page for page 11	
<p>General Definitions for section 14.0</p> <p>Tree Farming/Agroforestry</p> <p>This section refers to trees planted for wood (firewood, poles, planks, carving, charcoal, medicinal, etc, but NOT fruit trees). It does not include naturally growing trees on the farm (unless special care has been given to promote their establishment) or trees growing naturally on the communal areas.</p> <p>Tree farming is the planting of trees on an area of land for which the main purpose is the production and regeneration of trees for wood on that land.</p> <p>Agroforestry: is the planting of trees on land for the purpose of complementing other farming activities like crop and animal production. For the purpose of this questionnaire Agroforestry trees are trees planted on boundaries and scattered throughout fields. The main productive unit in this case is Crops and Livestock.</p>	<p>Section 14.2 Details of planted trees</p> <ol style="list-style-type: none"> 1. Enter the tree codes of the main species grown by the hh 2. If no planks or poles are sold enter a "0" in columns 8, & 9. 3. Total value includes both value of hh utilised trees and sold trees. 4. If no trees were utilised by the hh or sold enter "0" in column 10
<p>Question Specific Definitions</p> <p>Tree farming (Section 14.0)</p> <p>Pole trees (Col 6): These are young trees which have a maximum diameter of 6 inches at the bottom and are often used for house construction. They are often the thinning harvest after 3 - 5 years.</p> <p>Plank trees (Col 7): Trees for sawing into timber planks.</p> <p>Animal shade: Trees grown for the purpose of providing shade to animals.</p>	<p>Section 15.1 Crop Extension Services</p> <ol style="list-style-type: none"> 1. For each of the extension providers ask if the hh received extension during 2002/2003 agriculture year and indicate in column 2. 2. For each of the providers complete the rest of the columns
<p>Community tree planting scheme (Section 14.3)</p> <p>Community Forest: A forest planted on the communal land which is planted, replanted or spot planted by the members of the village.</p>	
<p>Crop Extension Services (Section 15.1)</p> <p>Contact Farmer: A farmer who is used by the extension agent as a focal point to demonstrate new interventions. The contact farmer then passes on the message to other farmers</p> <p>Group member: Member of a group under which the contact farmer leads</p> <p>Adoption: This is the uptake of an intervention for 2 or more years</p>	

Tree Name Guide Col 1

Code	Local Name	Botanical Name	English Name
01		<i>Senna siamea</i>	Cassod tree
02	Msongorna	<i>Gravellia</i>	Silver oak
03	Mbarika	<i>Azela quanzensis</i>	Pod mahogany
04	Mikeshia	<i>Acacia spp</i>	Umbrella thorn
05	Msindano	<i>Pinus spp</i>	Pine
06	Mikaratusi	<i>Eucalyptus spp</i>	Red River Gum
07		<i>Cyprus spp</i>	Cyprus tree
08	Mitondoo	<i>Calophyllum inophyllum</i>	
09	Mvule	<i>Melicia excelsa</i>	Iroko
10	Mvinji	<i>Casurina equisetifolia</i>	Whistling oak
11	Mtaji	<i>Tectona grandis</i>	Teak
12	Mkungu we kienyeji	<i>Terminalia catapa</i>	Sea almond
13	Mkungu India	<i>Terminalia ivorensis</i>	Black afara
14	Muhumula	<i>Maesopsis berchemoides</i>	
15			

Code	Local Name	Botanical Name	English Name
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

14.0 TREE FARMING/AGROFORESTRY

14.1 Did your household have any **Planted Trees** on your land during 2002/03 agric year? (Yes =1, No=2)
If the response is 'NO' go to section 14.3

14.2 Give details of the **planted trees** you have on your land.

S/N	Tree Code	Number of trees	When planted	Main Use	Secondary Use	Number of Plank trees Sold	Number of Pole trees Sold	hh utilised		Total Value (Tsh.)
								Poles	Timber	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
14.2.1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
14.2.2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
14.2.3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
14.2.4	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Where Planted (Col 3)
 Mostly on field/plot boundaries.....1
 Mostly scattered in fields2
 Mostly in plantation/coppice3

Use (Col 4 & 5)
 Planks/Timber.....1 Shade5
 Poles2 Medicinal.....6
 Charcoal3 Other8
 Fuel wood4

14.3 Does your village have a **Community tree planting scheme** (Yes=1, No=2)
If the response is 'NO' go to section 15.0

14.4 Household involvement in **community tree planting scheme**

S/N	Distance to community planted forest (Km)	hh Involve -ment	Main purpose	Main use during 2002/03
	(1)	(2)	(3)	(4)
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

HH Involvement (Col 2)
 Only planting1
 Only protection and thinning.....2
 Only cutting3
 Most or all activities.....4

Main Purpose (Col 3)
 Erosion control.....1 Environment rehabilitation2
 Production of poles2 Restoration of wildlife3
 production of firewood.....3 Other (specify)4

Main Use during 02/03(Col 4)
 Poles1 Not ready to use5
 Timber logs2 Not allowed to use6
 Charcoal3 Other (specify)8
 Firewood4

15.0 CROP EXTENSION SERVICES

15.1 Did your household receive **extension advice** for **crop production** during 2002/03 (Yes=1, No=2)
If the response is 'NO' go to section 16.0

S/N	Extension Provider	Source of extension (Y=1,N=2)	If you pay for extension, what is the cost/yr	Contact farmer /group member (Yes=1, No=2)	No. of visits by extension agency per year	No. of message adopted in the last 3 years	Quality of Service
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
15.1.1	Government extension	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
15.1.2	NGO/development project	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
15.1.3	Cooperative	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
15.1.4	Large Scale farmer	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
15.1.5	Other.....	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Quality of service (Col 7)
 Very good.....1 good2 Average.....3 Poor.....4 No Good5

Definitions and working page for page 12**Question Specific Definitions**

Crop Extension Advice (Section 15.2)

Mechanisation/LST: LST means Labour Saving Technology

Section 16.0 Livelihood constraints**16.1 List the five most important problems in order of most importance:**

1. Read out the list of constraints to the respondent and ask him to select the ones that are a problem. Place a **P** against the constraints that are a problem.
2. Read the selected constraints and ask the farmer to select 5 which create the largest problems
3. Ask the farmer to list these in order of importance and enter in column 2

16.2 List the five least important problems in order of least importance:

1. Read out the list of constraints to the respondent and ask him to select the ones that are **NOT** a problem. Place an **O** against the constraints that are **NOT** a problem.
2. Read the selected constraints and ask the farmer to select 5 which create the least problems
3. Ask the farmer to list these in order of least importance and enter in column 2

15.2 Crop Extension Messages				
S/N	Extension Message	Received Advice Yes=1 No=2	Adopted Yes=1 No=2	Source of Crop Extension
	(1)	(2)	(3)	(4)
15.2.1	Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.2	Use of agrochemicals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.3	Erosion control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.4	Organic fertiliser use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.5	Inorganic fertiliser use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.6	Use of improved seed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.7	Mechanisation/L ¹	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.8	Irrigation Technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

S/N	Extension Message	Received Advice Yes=1 No=2	Adopted Yes=1 No=2	Source of Crop Extension
	(1)	(2)	(3)	(4)
15.2.9	Crop Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.10	Vermin control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.11	Agro-processing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.12	Agro-forest	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.13	Bee Keeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.14	Fish Farming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2.15	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Source of extension (Col 4)
 Government1 NGO/Dev project ...2 Cooperative ...3 Large scale farmer4 Other (Specify) ...8 Not applicable9

16.0 LIVELIHOOD CONSTRAINTS

From the list of constraints on the right select:

16.1 the 5 most important problems		16.2 the 5 least important problems			
Order of most importance	Constraint	Order of least importance	Constraint		
	(1)	(1)	(2)		
16.1.1	most important	<input type="checkbox"/>	16.2.1	Least important	<input type="checkbox"/>
16.1.2	2nd most important	<input type="checkbox"/>	16.2.2	2nd least important	<input type="checkbox"/>
16.1.3	3rd most important	<input type="checkbox"/>	16.2.3	3rd least important	<input type="checkbox"/>
16.1.4	4th most important	<input type="checkbox"/>	16.2.4	4th least important	<input type="checkbox"/>
16.1.5	5th most important	<input type="checkbox"/>	16.2.5	5th least important	<input type="checkbox"/>

- List of constraints**
1. Access to Land
 2. Ownership of Land
 3. Poor farm Inputs
 4. Soil Fertility
 5. Access to improved seed
 6. Irrigation facilities
 7. Access to chemical inputs
 8. Cost of Inputs
 9. Extension Services
 10. Access to forest resources
 11. Hunting and Gathering
 12. Access to potable water
 13. Access to credit
 14. Harvesting
 15. Threshing
 16. Storage
 17. Processing
 18. Market information
 19. Transport costs
 20. Distraction by animals
 21. Stealing
 22. Pests and Diseases
 23. Local government taxation
 24. Access to off Farm Income

17.0 ANIMAL CONTRIBUTION TO CROP PRODUCTION

17.1 Did you use Draft animals to cultivate your land during 02/03 (Yes=1, No=2)

(If no, go to question 17.2)

S/N	Type of Draft	Number owned	Number used	Area cultivated (acres)
	(1)	(2)	(3)	(4)
17.1.1	Oxen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.1.2	Bulls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.1.3	Cows	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.1.4	Donkeys	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17.2 Did you apply organic fertiliser during 02/03 (Yes=1, No=2)

(If no, go to question 18)

S/N	Type of organic Fertiliser	Area applied (acres)
	(1)	(2)
17.2.1	FYM	<input type="checkbox"/>
17.2.2	Compost	<input type="checkbox"/>

<p>Definitions and working page for page 13 General definitions for page 13</p> <p>Cattle Intake during 2002/03: Cattle purchased, given or born which increases the number of cattle in the herd.</p> <p>Cattle Offtake during 2002/03: Cattle removed from the herd, either by selling, hh consumption, given away or stolen.</p>	<p>Section 18.0 Cattle Population, Intake & Offtake.</p> <p>NOTE: Section 18.1 is for the current population (as of 1st October 2003); Section 18.2 and 18.3 is for movement in and out of the herd during the 2002/03 agriculture year. Section 18.4 is for diseases encountered during the agriculture year.</p> <ol style="list-style-type: none"> 1. If the household has cows, you would normally expect them to have calves in column 8 2. If calves are reported in column 2, 3, or 4 (18.2.6, 18.2.5) then there must be at least that number repeated in column 8 <p>Note: If the farmer reports sales of cattle the importance of this must be reflected in Q.2.2.3</p> <p>Section 18.5 If cattle are reported to have died in Column 5 then at least that number should be reported in 18.4 col 4</p>
<p>Question Specific Definitions (Section 18.0)</p> <p>Cattle type (Q 18.2 & 18.4, Col 1)</p> <p>Bull: Mature Uncastrated male cattle used for breeding</p> <p>Cow: Mature female cattle that has given birth at least once</p> <p>Steer: Castrated male cattle over 1 year</p> <p>Heifer: Female cattle of 1 year up to the first calving</p> <p>Calves: Young cattle under 1 year of age</p>	<p>Working area for page 13</p>
<p>Average Value per Head (Q 18.3, (Col 7 & 9) & 18.4 (Col 5, 5 & 7))</p> <p>In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/solden estimate the value.</p>	<p>Cattle vaccination (18.5 col 1)</p> <p>ECF: East Coast Fever</p> <p>FMD: Foot and Mouth Disease</p> <p>CBPP: Contagious Bovine Pleura Pneumonia</p>

18.0 CATTLE POPULATION, INTAKE AND OFFTAKE															
18.1 Did the household own, raise or manage any CATTLE during 2002/03 agriculture year? (If no go to section 19.0)											(Yes =1 No =2)				
18.2 Cattle Population as of 1st October 2003															
S/N	Cattle type (1)	Number of Indigenous		Number of Improved		Total	Number Purchased (6)	Number given/obtained (7)	Number Born (8)	Total Intake of Cattle (9)	Average Value per head (10)				
		Beef (3)	Dairy (4)	Beef (5)	Dairy (6)										
18.2.1	Bulls								X X X						
18.2.2	Cows								X X X						
18.2.3	Steers								X X X						
18.2.4	Heifers								X X X						
18.2.5	Male Calves														
18.2.6	Female Calves														
Grand Total															
Total Intake															
18.3 Cattle Intake during 2002/2003															
18.5 Cattle diseases															
S/N	Cattle type (1)	Number sold/traded (2)	Number consumed by hh (3)	Number given away/stolen (4)	Number died (5)	Total Cattle Offtake (6)	Average value per head (7)	S/N	Disease/parasite (1)	Number Infected (2)	Number Treated (3)	No. Rec-ov-ered (4)	Number Died (5)	Last vacci-nated (6)	Main Sou-rces (7)
18.4.1	Bulls							18.5.1	TICK BOMBS diseases						
18.4.2	Cows							18.5.2	CBPP						
18.4.3	Steers							18.5.3	Trypanosomiasis Lumpy Skin Disease					X	X
18.4.4	Heifers							18.5.4							
18.4.5	Male Calves							18.5.5	Helminthosis					X	X
18.4.6	Female Calves							18.5.6	EMD						
Total Offtake								Total Intake							
18.4 Cattle Offtake during 2002/2003															
18.6 Milk Production															
S/N	Season (1)	Litres of milk/day (2)	No. of cattle milked/day (3)	Value/litre (4)	Sold to (5)	Sold/day (Litres) (6)									
18.6.1	Wet Season														
18.6.2	Dry Season														

Last Vaccinated (Col. 6)
 20031 20004
 20022 Before 20005
 20013 Not Vaccinated...6

Main Source of vaccine (Col 7)
 Private Vet Clinic...1 Other8
 District Vet Clinic...2 Not applicable...9
 NGO/Project3

Sold to (Col 5)
 Neighbour.....1
 Local Market.....2
 Secondary Market...3
 Processing Industry...4
 Large-scale farm...5
 Trader at Farm...6
 Did not sell.....7
 Other8

**Definitions and working page for page 14
Goat definitions for page 14**

Goat Intake during 2002/03: Goat purchased, given or born which increases the number of goats in the herd.

Goat Offtake during 2002/03:
Goat removed from the herd, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 19.0)

Goat type (Q 19.2 & 19.4, Col 1)

Billy Goat (he-goat): Mature Uncastrated male goat used for breeding

Castrated goat: Male goat that has been castrated.

She Goat: Mature female goat over 9 months of age

Kid: Young goat under 9 months of age.

Average Value per Head (Q 19.3, (Col 7 & 9) & 19.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Goat vaccination (19.5 col 1)

FMD: Foot and Mouth Disease

CCPP: Contagious Caprine Pleura Pneumonia

LSO: Lumpy Skin Disease

Section 19.0 Goat Population, Intake & Offtake.

NOTE: Section 19.1 is for the current population (as of 1st October 2003);
Section 19.2 and 19.3 is for movement in and out of the herd during the 2002/03 agriculture year.

Section 19.4 is for diseases encountered during the agriculture year.

1. If the household has she goats, you would normally expect them to have kids in column 8
2. If kids are reported in column 2, 3, or 4 (19.2.6, 19.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of goats the importance of this must be reflected in Q 2.2.3

Section 19.5 If goats are reported to have died in Column 5 then at least that number should be reported in 19.4 col 4

Working area for page 14

19.0 GOAT POPULATION, INTAKE AND OFFTAKE														
19.1 Did the household own, raise or manage any GOATS during the 2002/03 agriculture year? (If no go to section 20.0)											(Yes =1 No =2)			
19.2 Goat Population as of 1st October 2003														
S/N	Goat type (1)	Number of Indigenous (2)	Number of Improved for meat (3)	Dairy (4)	Total (5)	Number Purchased (6)	Number given /obtained (7)	Number Born (8)	Total Intake of Goats (9)	Average Value per head (10)				
19.2.1	Billy Goat							X X X						
19.2.2	Castrated Goat							X X X						
19.2.3	She Goat							X X X						
19.2.4	Male Kid													
19.2.5	She Kid													
Grand Total														
19.3 Goat Intake during 2002/2003														
S/N	Goat type (1)	Number of Indigenous (2)	Number of Improved for meat (3)	Dairy (4)	Total (5)	Number Purchased (6)	Number given /obtained (7)	Number Born (8)	Total Intake of Goats (9)	Average Value per head (10)				
19.3.1	Billy Goat							X X X						
19.3.2	Castrated Goat							X X X						
19.3.3	She Goat							X X X						
19.3.4	Male Kid													
19.3.5	She Kid													
Total Intake														
19.4 Goat Offtake during 2002/2003														
S/N	Goat type (1)	Number Sold/traded (2)	Number consumed by hh (3)	Number given away/stolen (4)	Number died (5)	Total Goat Offtake (6)	Average value per head (7)					Main Source milked (8)		
19.4.1	Male goat													
19.4.2	Castrated Goat													
19.4.3	She Goat													
19.4.4	Male Kid													
19.4.5	She Kid													
Total Offtake														
19.5 Goat diseases														
S/N	Disease/parasite (1)	S/N (2)	Number Infected (3)	Number Treated (4)	No. Rec-ferred (5)	Number Died (6)	Last vacci- mated (7)					Main Source of vaccine (Col 7)		
19.5.1	Foot Rot													
19.5.2	CCPP													
19.5.3	Helminthosis													
19.5.4	Tetanus													
19.5.5	Mange													
Last Vaccinated (Col 6)														
20031												20004		
20022												before 20005		
20013												Not Vaccinated...6		
Main Source of vaccine (Col 7)														
Private Vet Clinic1												Other8		
District Vet Clinic2												Not applicable9		
NGO/Project.....3														
19.6 MILK PRODUCTION														
S/N	Season (1)	Litres of milk/day (2)	No. of Goats milked/day (3)	Value/litre (4)	Sold to (5)	Sold/day (Litres) (6)								
19.6.1	Wet Season													
19.6.2	Dry Season													

Definitions and working page for page 15

Sheep definitions for page 15

Sheep Intake during 2002/03: Sheep purchased, given or born which increases the number of Sheep in the herd.

Sheep Offtake during 2002/03:

Sheep removed from the herd, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 20.0)

Sheep type (Q 20.2 & 20.4, Col 1)

Ram: Mature Uncastrated male goat used for breeding

Castrated sheep: Male sheep that has been castrated.

Ewe: Mature female sheep over 9 months of age

Lamb: Young sheep under 9 months of age.

Average Value per Head (Q 20.3, (Col 7 & 9) & 20.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Sheep vaccination (20.5 col 1)

FMD: Foot and Mouth Disease

CCPP: Contagious Caprine Pleura Pneumonia

Section 20.0 Sheep Population, Intake & Offtake.

NOTE: Section 20.1 is for the current population (as of 1st October 2003);

Section 20.2 and 20.3 is for movement in and out of the herd during the 2002/03 agriculture year.

Section 20.4 is for diseases encountered during the agriculture year.

1. If the household has ewes, you would normally expect them to have kids in column 8
2. If lambs are reported in column 2, 3, or 4 (20.2.6, 20.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of Sheep the importance of this must be reflected in Q 2.2.3

Section 20.5 If Sheep are reported to have died in Column 5 then at least that number should be reported in 20.4 col 4

Working area for page 15

20.0 SHEEP POPULATION, INTAKE AND OFFTAKE																																																																																																																																			
<p>20.1 Did the household own, raise or manage any SHEEP during the 2002/03 agriculture year? (Yes =1 No =2) ()</p>																																																																																																																																			
<p>20.2 Sheep Population as of 1st October 2003</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">S/N</th> <th rowspan="2">Sheep type (1)</th> <th rowspan="2">Number of Indigenous (2)</th> <th colspan="2">Number of Improved (3)</th> <th rowspan="2">Total (5)</th> <th rowspan="2">S/N</th> <th rowspan="2">Number Purchased (6)</th> <th rowspan="2">Number given /obtained (7)</th> <th rowspan="2">Number Born (8)</th> <th rowspan="2">Total Intake of Sheep (9)</th> <th rowspan="2">Average Value per head (10)</th> </tr> <tr> <th>for Mutton</th> <th>Dairy (4)</th> </tr> </thead> <tbody> <tr> <td>20.2.1</td> <td>Ram</td> <td></td> <td></td> <td>X X X</td> <td></td> <td>20.3.1</td> <td></td> <td></td> <td>X X X</td> <td></td> <td></td> </tr> <tr> <td>20.2.2</td> <td>Castrated Sheep</td> <td></td> <td></td> <td>X X X</td> <td></td> <td>20.3.2</td> <td></td> <td></td> <td>X X X</td> <td></td> <td></td> </tr> <tr> <td>20.2.3</td> <td>She Sheep</td> <td></td> <td></td> <td>X X X</td> <td></td> <td>20.3.3</td> <td></td> <td></td> <td>X X X</td> <td></td> <td></td> </tr> <tr> <td>20.2.4</td> <td>Male lamb</td> <td></td> <td></td> <td>X X X</td> <td></td> <td>20.3.4</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>20.2.5</td> <td>She lamb</td> <td></td> <td></td> <td>X X X</td> <td></td> <td>20.3.5</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6" style="text-align: center;">Grand Total</td> <td colspan="6"></td> </tr> </tbody> </table>												S/N	Sheep type (1)	Number of Indigenous (2)	Number of Improved (3)		Total (5)	S/N	Number Purchased (6)	Number given /obtained (7)	Number Born (8)	Total Intake of Sheep (9)	Average Value per head (10)	for Mutton	Dairy (4)	20.2.1	Ram			X X X		20.3.1			X X X			20.2.2	Castrated Sheep			X X X		20.3.2			X X X			20.2.3	She Sheep			X X X		20.3.3			X X X			20.2.4	Male lamb			X X X		20.3.4						20.2.5	She lamb			X X X		20.3.5						Grand Total																																													
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S/N	Sheep type (1)	Number Sold /traded (2)	Number culled /summed by hh (3)	Number given away /stolen (4)	Number died (5)	Total Sheep Offtake (6)	Average value per head (7)	20.5 Sheep diseases												Last vacci- nated (8)	Main Sou- rce (7)																																																																																																														
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Definitions and working page for page 16

Pigs definitions for page 16

Pig Intake during 2002/03: Pigs purchased, given or born which increases the number of Pigs in the production unit.

Pig Offtake during 2002/03:

Pigs removed from the production unit, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 21.0)

Pigs type (Q 21.2 & 21.4, Col 1)

Bear: Mature Uncastrated male pig used for breeding

Castrated Pig: Male pig that has been castrated.

Sow: Mature female pig that has given birth to at least one litter of pigs.

GILT: Female pig of 9 months up to the first farrowing.

Piglet: Young pig under 3 months of age.

Average Value per Head (Q 21.3, (Col 7 & 9) & 21.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Pig vaccination (21.5 col 1)

ASIP: African Swine Fever

Section 21.0 Pig Population, Intake & Offtake.

NOTE: Section 21.1 is for the current population (as of 1st October 2003);

Section 21.2 and 21.3 is for movement in and out of the herd during the 2002/03 agriculture year.

Section 21.4 is for diseases encountered during the agriculture year.

1. If the household has sows, you would normally expect them to have piglets in column 8
2. If piglets are reported in column 2, 3, or 4 (20.2.6, 20.2.5) then there must be at least that number repeated in column 8

Notes: If the farmer reports sales of Pigs the importance of this must be reflected in Q 2.2.3

Section 20.5 If Pigs are reported to have died in Column 5 then at least that number should be reported in 20.4 col 4

Working area for page 16

21.0 PIG POPULATION AND PRODUCTION															
21.1 Did the household own, raise or manage any PIGS during the 2002/03 agriculture year (Yes =1 No =2) (If no go to section 22.0)															
21.2 PIG Population as of 1st October 2003															
21.3 Pig increase during 2002/2003															
S/N	Pig type (1)	Number (2)	Number Sold/traded (2)	Number con- sumed by bh (3)	Number given away / stolen (4)	Number died (5)	Total Pig Offtake (6)	Average value per head (7)	S/N	Disease/ parasite (1)	Number Infected (2)	Number Treated (3)	No. Rec- overed (4)	Number Died (5)	Last Main Sown mated -ree (6)
21.3.1	Boer									X	X	X			
21.3.2	Castrated male									X	X	X			
21.3.3	Sow/Gilt									X	X	X			
21.3.4	Male piglet														
21.3.5	She piglet														
Grand Total															
21.5 Pig diseases/pests/conditions															
S/N	Pig type (1)	Number (2)	Number Sold/traded (2)	Number con- sumed by bh (3)	Number given away / stolen (4)	Number died (5)	Total Pig Offtake (6)	Average value per head (7)	S/N	Disease/ parasite (1)	Number Infected (2)	Number Treated (3)	No. Rec- overed (4)	Number Died (5)	Last Main Sown mated -ree (6)
21.5.1	Boer								21.5.1	Anthrax					
21.5.2	Castrated male								21.5.2	ASF					
21.5.3	Sow/Gilt								21.5.3	Anemia					X
21.5.4	Male piglet								21.5.4	Helminthoos					X
21.5.5	She piglet														
Total Offtake															
22.0 LIVESTOCK PEST & PARASITE CONTROL															
22.1 Did you deworm your animals during 2002/03 (Yes=1, No=2) (If the response is 'NO' go to section 22.3)															
22.2 Which animals did you deworm? (Tick appropriate boxes)															
Cattle <input type="checkbox"/> Goats <input type="checkbox"/> Sheep <input type="checkbox"/> Pigs <input type="checkbox"/>															
22.3 Do you normally encounter a tick problem (Yes=1, No=2) <i>(If the response is 'NO' go to section 22.3)</i>															
22.4 Which methods of tick control did you use <i>Control method (0-22) None...1 Spraying...2 Dipping...3 Smearing...4 Other...8</i>															
22.5 Do you normally encounter a tsetse fly problem (Y=1, N=2) <i>(If the response is 'NO' go to section 23.0)</i>															
22.6 Which methods of control did you use <i>Control method (0-22) None...1 Spray...2 Dipping...3 Trapping...4 Other...8</i>															
Last Vaccinated (Col 6) 2003...1 2000.....4 2002...2 before 2000....5 2001...3 Not Vaccinated 6	Main Source (Col 7) Private Vet Clinic...1 District Vet Clinic...2 NGO/Project.....3 Other.....8 Not applicable.....9														

Definition and working page for page 17	Procedures for questions
<p>Question Specific Definitions Section 26.0)</p>	<p>Section 23.0 - Other Livestock:</p> <p>1. The current number includes both adult and young animals. For example The number of chickens in col 1 would include adults and chicks.</p>
<p>Question Specific Definitions Section 27.0)</p> <p>Access to functional Livestock Structures/accessories (Section 27.0):</p> <p>NOTE: The structures must be functional. If they are not working/derelict then they should not be included. The distance to the next nearest functional structure should be taken.</p> <p>Spray Race: A fixed spray structure on an animal race for spraying acaricide</p> <p>Cattle crush: Corridor structure for restraining cattle.</p> <p>Abattoir: Large building designed for slaughtering a large amount of animals. It normally has complex structures to assist in the slaughter and storage and a high level of hygiene is maintained.</p> <p>Slaughter Slab: Concrete slab designed for slaughtering a small amount of animals</p> <p>Hides: obtained from Cattle</p> <p>Skins: Obtained from sheep and goats</p> <p>Hide/Skin Shed: Shed for curing/tanning animal skins and hides</p> <p>Village holding Pen: Enclosure for containing large amount of livestock which is owned communally.</p> <p>Drencher: Device for orally administering medicine to livestock. If no product was sold in 2002 enter "0" in columns 6, 7 & 9.</p>	<p>Section 26.0 - Outlets for livestock:</p> <p>Using the codes enter the outlets for the sale of different livestock in order of importance. If there are, for example, only 2 outlets mark the rest with a "X".</p>

23.0 Other Livestock currently available and details of consumption and sales during the last 12 months										
	Animal type	Current Number		Sold during 2002/03		Consumed during 2002/03				
				Number	Average Value/head	Number	Average Value/head			
		(1)	(2)	(3)	(4)	(5)				
23.1	Indigenous Chicken									
23.2	Layer									
23.3	Broiler									
23.4	Ducks									
23.5	Turkeys									
23.6	Rabbits									
23.7	Donkeys									
23.8	Horses				X X X	X X X X X				
23.9	Other									
24.0	CHICKEN DISEASES	Number Infected		Number Treated		Number Died		Number Recovered		
24.1	Newcastle Disease									
24.2	Gumboro									
24.3	Coccidiosis									
24.4	Chorysa									
24.5	Fowl typhoid									
25.0	LIVESTOCK PRODUCTS	Sold during 2002/03				Consumed/utilised during 2002/03				
		Number		Average Value/unit		Number		Average Value/unit		
25.1	Eggs			X						
25.2	Hides									
25.3	Skins									
26.0	List in order of importance the outlets for the sale of Livestock						27.0 Access to functional Livestock structures /accessories			
S/N	Importance of outlet	Outlets for Cattle	Outlets for Goat	Outlets for Sheep	Outlets for Pigs	Outlets for Chickens	S/N	Type of structure / accessory	Source of Structure	Distance to structure (Km)
								(1)		
26.1	1st						27.1	Cattle Dip		
26.2	2nd						27.2	Spray Race		
26.3	3rd						27.3	Hand powered sprayer		
26.4	4th						27.4	Cattle crush		
26.5	5th						27.5	Primary Market		
							27.6	Secondary Market		
							27.7	Abattoir		
							27.8	Slaughter Slab		
							27.9	Hide/skin shed		
							27.10	Input supply		
							27.11	Veterinary Clinic		
							27.12	Village holding ground		
							27.13	village watering point/dam		
							27.14	Drencher		

Outlet code (Col 2, 3, 4 & 5)

Trader at farm.....1 Abattoir/factory.....5
 Local Market.....2 Another farmer.....6
 Secondary market/auction.....3 Other (Specify).....8
 Neighbour.....4

Source of structure (Q27.0 - Col 2)

Owns.....1 NGO.....
 Cooperative.....2 Large scale farm.....7
 Local farmers association.....3 Other.....8
 Gov extension/veterinary.....4 Not applicable.....
 Development project.....5

<p>Definitions and working page for page 18 General definitions for Section 28.0</p> <p>Fish farming: Refers to the rearing/production of fish. It is different to fishing in that the fish have to be reared and fed in fish farming. Floating traps or captures naturally occurring fish in rivers, lakes and the sea and should not be included in this section.</p>	<p>Working area for page 18</p>
<p>Question Specific Definitions (Section 28.2)</p> <p>Production unit number (Col 1): A production unit is a pond river/lake which is treated as a separate entity for the production of fish eg it may be by virtue of manageable size, maturity of fish, type of fish etc. Eg a farmer may have 3 fish ponds. (each one is a separate production unit).</p> <p>Frequency of stocking (Col 5): What is the number of times the farmer puts new fingerlings into the pond each year.</p> <p>Fingerlings: These are young immature fish used for stocking ponds.</p> <p>Sold: (Col 10 & 11) If no fish were sold enter "0" in column 10 and 11)</p> <p>Livestock Extension Services (Section 29.1) Adopted (Col 9): This is the uptake of an intervention for 2 or more years</p> <p>Livestock Extension Service providers (Section 29.2) Contact Farmer: A farmer who is used by the extension services as a focal point to demonstrate new interventions to. The contact farmer then passes on the message to other farmers</p> <p>Adopted (Col 5): This is the uptake of an intervention for 2 or more years</p>	

28.0 FISH FARMING									
28.1 Was fish farming carried out by this household during 2002/2003? <input type="checkbox"/> (Yes=1, No=2) (If the response is 'NO' go to section 29.0)									
28.2 Specify details of fish farming practices									
S/N	Product fish farming system	Size of unit/pond (m ²)	Source frequency of fish of stocking (No./year)	Number of stocked fish		Weight of fish harvested (kg)	Weight of fish sold (kg)	Mainly sold to	
				Tilapia	Other				
28.1.1	1								
28.1.2	2								
28.1.3	3								

Farming System (Col 2) Natural Pond...1 Natural Lake...3 Other...8 Dug out pond...2 Water reservoir...4	Source of fingerlings (Col 4) Own pond...1 NGO/Project...3 Private trader...5 Government Institution...2 Neighbour...4 Other...8	Mainly sold to (Col 12) Neighbour...7 Large scale farm...3 Local Market...2 Processing Industry...4 Trader at Farm...6 Other...8 Did not sell...7
--	---	---

29.0 LIVESTOCK EXTENSION									
29.1 Did you receive livestock extension advice during 02/03 (Yes=1, No=2) <input type="checkbox"/> (If the response is 'NO' go to section 30.0)									
S/N	Livestock Extension Message	Received Advice Yes=1, No=2	Adapted Yes=1, No=2	Source of Livestock Extension	29.2 For the following Livestock Extension Service Providers give details			Quality of service (Col 6) Very good...1 good...2 Average...3 Poor...4 No Good...5	
					Extension Provider	If you pay for extension, what is the cost/r	Contact for extension member (Y=1, N=2)		No. of visits in the last 3 yrs
29.1.1	Feed and Proper feeding								
29.1.2	Housing (Goat, Dairy, Poultry, Pigs)								
29.1.3	Proper Milking								
29.1.4	Milk Hygiene								
29.1.5	Disease control (dipping/spraying)								
29.1.6	Herd/Flock size and selection								
29.1.7	Pasture Establishment								
29.1.8	Group formation and strengthening								
29.1.9	Calf rearing								
29.1.10	Use of improved bulls								
29.1.11	Other livestock extension								

30.0 GOVERNMENT REGULATORY PROBLEMS									
30.1 Did you face problems with government regulations during 2002/03 (Y=1, N=2) <input type="checkbox"/> (If the response is no go to section 31.0)									
List in order of importance									
S/N	Problem code	Problem code			Problem code				
		1st	2nd	3rd					
30.1.1	Land ownership by government								
30.1.2	Restriction of sale between regions								
30.1.3	Import of food items								
30.1.4	Other (specify)								

Definition and working page for page 19**Question specific definitions (Section 31.1)****Activity (Col 1):**

Land Clearing: Refers to removing trees/bush/grass prior to ploughing

Soil Preparation: Refers to the seedbed preparation (ploughing, harrowing, etc).

Cattle Rearing: Tending to cattle at home, eg assisting with births, castration, etc. Different livestock keeping activity to herding.

Cattle Herding: Moving livestock from place to place for grazing and water. If herding is carried out the respondent must also give a response to rearing/ husbandry

Question Specific Definitions (Section 32.0.0)**Activity (Col 1):**

Subsistence: For the family's survival, rather than for the generation of cash. This includes feeding the hh, provision of water and fuel for cooking. The source of these products are usually from the land resources available to the family. Remember that not all cash earnings are for non subsistence purposes/activities as cash can be used to purchase subsistence items eg food.

Non -subsistence: Cash used for items and activities which are not crucial for the survival of the family. This includes modern medication, non working clothes, refined beer, school fees, etc.

Procedures for (Section 31.1)**Section 31.1 ((Labour use)**

1. For each listed activity in column 1, place a tick in column 2 if any member of the household was involved in that activity during the 2002/03 agriculture year.
2. After completing column 2 return to the first activity in row 27.1.1 and complete column 3.
3. Make sure you stress MAINLY responsible.

NOTE: If an activity has been mentioned previously in the questionnaire eg that the hh keeps chickens, make sure a response is obtained in the appropriate place ie poultry keeping.

If off-farm income generation is mentioned, check for responses to off farm income in other parts of the questionnaire

Section 32.0 - Subsistence vs Non-subsistence

1. For each listed activity in column 1, place a tick in column 2 if any member of the household was involved in that activity during the 2002/03 agriculture year.
2. After completing column 2 return to the first activity in row 32.1.1 and complete column 3 & 4. For each activity make an assessment of the percentage used for subsistence survival and the percent converted to cash for non subsistence goods and items.
3. Make sure you stress MAINLY responsible.

NOTE: Cross check the responses with previous sections in the questionnaire, eg if a response is given to remittances check for an entry in question 2.2.5

31.0 LABOUR USE				32.0 SUBSISTENCE vs NON-SUBSISTENCE																																																	
31.1 Who is mainly responsible for undertaking the following tasks:				32.1 Indicate if any members of the household was involved in the following activities and assess the percentage used for subsistence/consumption by the household:																																																	
S/N	Activity	Tick if carried out by hh	Main responsibility	S/N	Activity	Tick if hh was involved in activity	Estimate % used for subsistence	Estimate % used for non subsistence	Check Total																																												
	(1)	(2)	(3)		(1)	(2)	(3)	(4)	(5)																																												
31.1.1	Land Clearing	<input type="checkbox"/>	<input type="checkbox"/>	32.1.1	Crop production	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	100																																												
31.1.2	Soil preparation (by hand)	<input type="checkbox"/>	<input type="checkbox"/>	32.1.2	Livestock production	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	100																																												
31.1.3	Soil preparation (oxen/tractor)	<input type="checkbox"/>	<input type="checkbox"/>	32.1.3	Vegetable production	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	100																																												
31.1.4	Planting	<input type="checkbox"/>	<input type="checkbox"/>	32.1.4	Tree cutting for firewood	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	100																																												
31.1.5	Weeding	<input type="checkbox"/>	<input type="checkbox"/>	32.1.5	Tree logging for poles	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	100																																												
31.1.6	Crop Protection	<input type="checkbox"/>	<input type="checkbox"/>	32.1.6	Tree logging for timber	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	100																																												
31.1.7	Harvesting	<input type="checkbox"/>	<input type="checkbox"/>	32.1.7	Tree logging for charcoal	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	100																																												
31.1.8	Crop processing	<input type="checkbox"/>	<input type="checkbox"/>	32.1.8	fishing	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	100																																												
31.1.9	Crop marketing	<input type="checkbox"/>	<input type="checkbox"/>	32.1.9	bee keeping	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	100																																												
31.1.10	Cattle rearing/husbandry	<input type="checkbox"/>	<input type="checkbox"/>	32.1.10	permanent employment/off farm income	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	100																																												
31.1.11	Cattle herding	<input type="checkbox"/>	<input type="checkbox"/>	32.1.11	temporary employment/off farm income	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	100																																												
31.1.12	Cattle marketing	<input type="checkbox"/>	<input type="checkbox"/>	32.1.12	Remittances	<input type="checkbox"/>	<input type="text"/>	<input type="text"/>	100																																												
31.1.13	Goat/sheep rearing/husbandry	<input type="checkbox"/>	<input type="checkbox"/>	33.0 ACCESS TO INFRASTRUCTURE & OTHER SERVICES																																																	
31.1.14	Goat and sheep herding	<input type="checkbox"/>	<input type="checkbox"/>																																																		
31.1.15	Goat and sheep marketing	<input type="checkbox"/>	<input type="checkbox"/>																																																		
31.1.16	Milking	<input type="checkbox"/>	<input type="checkbox"/>																																																		
31.1.17	Pig rearing/husbandry	<input type="checkbox"/>	<input type="checkbox"/>																																																		
31.1.18	Poultry keeping	<input type="checkbox"/>	<input type="checkbox"/>																																																		
31.1.19	Collecting Water	<input type="checkbox"/>	<input type="checkbox"/>																																																		
31.1.20	Collecting Firewood	<input type="checkbox"/>	<input type="checkbox"/>																																																		
31.1.21	Pole cutting	<input type="checkbox"/>	<input type="checkbox"/>																																																		
31.1.22	Timber wood cutting	<input type="checkbox"/>	<input type="checkbox"/>																																																		
31.1.23	Building/maintaining houses	<input type="checkbox"/>	<input type="checkbox"/>	<table border="1"> <thead> <tr> <th>S/N</th> <th>Type of service</th> <th>Distance in Km</th> <th>S/N</th> <th>Type of service</th> <th>Distance in Km</th> </tr> <tr> <td></td> <td>(1)</td> <td>(2)</td> <td></td> <td>(1)</td> <td>(2)</td> </tr> </thead> <tbody> <tr> <td>33.1</td> <td>Primary School</td> <td><input type="text"/></td> <td>32.7</td> <td>Feeder Road</td> <td><input type="text"/></td> </tr> <tr> <td>33.2</td> <td>Secondary School</td> <td><input type="text"/></td> <td>32.8</td> <td>All weather road</td> <td><input type="text"/></td> </tr> <tr> <td>33.3</td> <td>Health Clinic</td> <td><input type="text"/></td> <td>32.9</td> <td>Tarmac road</td> <td><input type="text"/></td> </tr> <tr> <td>33.4</td> <td>Hospital</td> <td><input type="text"/></td> <td>32.10</td> <td>Primary market</td> <td><input type="text"/></td> </tr> <tr> <td>33.5</td> <td>District Capital</td> <td><input type="text"/></td> <td>32.11</td> <td>Secondary market</td> <td><input type="text"/></td> </tr> <tr> <td>33.6</td> <td>Regional Capital</td> <td><input type="text"/></td> <td>32.12</td> <td>Tertiary market</td> <td><input type="text"/></td> </tr> </tbody> </table>		S/N	Type of service	Distance in Km	S/N	Type of service	Distance in Km		(1)	(2)		(1)	(2)	33.1	Primary School	<input type="text"/>	32.7	Feeder Road	<input type="text"/>	33.2	Secondary School	<input type="text"/>	32.8	All weather road	<input type="text"/>	33.3	Health Clinic	<input type="text"/>	32.9	Tarmac road	<input type="text"/>	33.4	Hospital	<input type="text"/>	32.10	Primary market	<input type="text"/>	33.5	District Capital	<input type="text"/>	32.11	Secondary market	<input type="text"/>	33.6	Regional Capital	<input type="text"/>	32.12	Tertiary market	<input type="text"/>
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31.1.24	Making Beer	<input type="checkbox"/>	<input type="checkbox"/>	<table border="1"> <thead> <tr> <th>S/N</th> <th>Type of service</th> <th>Distance in Km</th> <th>No of visits/year</th> <th>Satisfied with service</th> </tr> <tr> <td></td> <td>(1)</td> <td>(2)</td> <td>(3)</td> <td>(4)</td> </tr> </thead> <tbody> <tr> <td>33.13</td> <td>Vet Clinic</td> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>33.14</td> <td>Extension Centre</td> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>33.15</td> <td>Research Station</td> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>33.16</td> <td>Plant protection Lab</td> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>33.17</td> <td>Land registration office</td> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> <tr> <td>33.18</td> <td>Livestock Dev Centre</td> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> </tbody> </table>		S/N	Type of service	Distance in Km	No of visits/year	Satisfied with service		(1)	(2)	(3)	(4)	33.13	Vet Clinic	<input type="text"/>	<input type="text"/>	<input type="text"/>	33.14	Extension Centre	<input type="text"/>	<input type="text"/>	<input type="text"/>	33.15	Research Station	<input type="text"/>	<input type="text"/>	<input type="text"/>	33.16	Plant protection Lab	<input type="text"/>	<input type="text"/>	<input type="text"/>	33.17	Land registration office	<input type="text"/>	<input type="text"/>	<input type="text"/>	33.18	Livestock Dev Centre	<input type="text"/>	<input type="text"/>	<input type="text"/>								
S/N	Type of service	Distance in Km	No of visits/year	Satisfied with service																																																	
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33.18	Livestock Dev Centre	<input type="text"/>	<input type="text"/>	<input type="text"/>																																																	
31.1.25	Bee keeping	<input type="checkbox"/>	<input type="checkbox"/>																																																		
31.1.26	Fishing	<input type="checkbox"/>	<input type="checkbox"/>																																																		
31.1.27	Fish farming	<input type="checkbox"/>	<input type="checkbox"/>																																																		
31.1.28	Off-farm income generation	<input type="checkbox"/>	<input type="checkbox"/>																																																		
Responsibility (Col 3) HH head alone1 Girls6 Adult Males2 Boys & Girls7 Adult Females3 All household members8 Adults4 Hired labour9 boys5																																																					
Satisfied with service (Col 4) Very good1 Average3 No good5 Good2 Poor4 Not applicable 9																																																					

Definition and working page for page 20**Household facilities (Section 34):****Number of rooms used for sleeping in the household (Q 34.1)**

Include sitting room, dining room, kitchen, etc if used for sleeping. It also includes rooms outside the main dwelling

A room is defined as a space which is separate from the rest of the building by a permanent wall or division. A building/house that is not divided into rooms is considered to have one room.

Household assets (Q 34.2): these assets must be functioning. Do not include if broken.

Access to drinking water (Q 34.4): if there is more than one source, use the one, which the hh uses most frequently.

Main source of hh cash income:

Activity that provides the hh with the most cash during 2002/03 agriculture year.

34.0 HOUSEHOLD FACILITIES																														
34.1 House Construction		34.2 Household assets																												
<p>For the main dwelling, what are the main building materials used in the construction of the following</p> <p>34.1.1: Roof <input type="checkbox"/> 34.1.2 Number of rooms <input type="checkbox"/></p> <div style="border: 1px solid black; padding: 5px;"> <p>Roof Material</p> <p>Iron Sheets.....1</p> <p>Tiles.....2</p> <p>Concrete.....3</p> <p>Asbestos.....4</p> <p>Grass/leaves.....5</p> <p>Grass & mud.....6</p> <p>Other (Specify) 8</p> <p>Other (insert) 8</p> </div>		<p>Does your household own the following?</p> <table border="1"> <thead> <tr> <th>Asset</th> <th>Y=1</th> <th>N=2</th> </tr> </thead> <tbody> <tr> <td>34.2.1 Radio/cassette, music system)</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>34.2.2 Telephone (landline)</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>34.2.3 Telephone (mobile)</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>34.2.4 Iron</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>34.2.5 Wheelbarrow</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>34.2.6 Bicycle</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>34.2.7 Vehicle</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>34.2.8 Television</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table>		Asset	Y=1	N=2	34.2.1 Radio/cassette, music system)	<input type="checkbox"/>	<input type="checkbox"/>	34.2.2 Telephone (landline)	<input type="checkbox"/>	<input type="checkbox"/>	34.2.3 Telephone (mobile)	<input type="checkbox"/>	<input type="checkbox"/>	34.2.4 Iron	<input type="checkbox"/>	<input type="checkbox"/>	34.2.5 Wheelbarrow	<input type="checkbox"/>	<input type="checkbox"/>	34.2.6 Bicycle	<input type="checkbox"/>	<input type="checkbox"/>	34.2.7 Vehicle	<input type="checkbox"/>	<input type="checkbox"/>	34.2.8 Television	<input type="checkbox"/>	<input type="checkbox"/>
Asset	Y=1	N=2																												
34.2.1 Radio/cassette, music system)	<input type="checkbox"/>	<input type="checkbox"/>																												
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34.2.3 Telephone (mobile)	<input type="checkbox"/>	<input type="checkbox"/>																												
34.2.4 Iron	<input type="checkbox"/>	<input type="checkbox"/>																												
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34.2.6 Bicycle	<input type="checkbox"/>	<input type="checkbox"/>																												
34.2.7 Vehicle	<input type="checkbox"/>	<input type="checkbox"/>																												
34.2.8 Television	<input type="checkbox"/>	<input type="checkbox"/>																												
34.3 Energy use by the Household		34.4 Access to drinking water																												
<p>Energy use and access by the household</p> <table border="1"> <thead> <tr> <th colspan="2">Main Source of energy for</th> </tr> </thead> <tbody> <tr> <td>34.3.1 Lighting <input type="checkbox"/></td> <td>34.3.2 Cooking <input type="checkbox"/></td> </tr> </tbody> </table> <div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 5px; width: 45%;"> <p>Lighting energy</p> <p>Mains electricity.....01</p> <p>Solar.....02</p> <p>Gas (biogas).....03</p> <p>Hurricane Lamp.....04</p> <p>Pressure Lamp.....05</p> <p>Wick Lamp.....06</p> <p>Candles.....07</p> <p>Firewood.....08</p> <p>Other (specify).....98</p> </div> <div style="border: 1px solid black; padding: 5px; width: 45%;"> <p>Cooking energy</p> <p>Mains electricity.....01</p> <p>Solar.....02</p> <p>Gas (hh biogas).....03</p> <p>Bottled gas.....04</p> <p>Paraffin/kerosene.....05</p> <p>Charcoal.....06</p> <p>Firewood.....07</p> <p>Crop Residues.....08</p> <p>Livestock dung.....09</p> <p>Other (specify).....98</p> </div> </div>		Main Source of energy for		34.3.1 Lighting <input type="checkbox"/>	34.3.2 Cooking <input type="checkbox"/>	<table border="1"> <thead> <tr> <th>Season</th> <th>Main source of drinking water</th> <th>Distance to source (in km)</th> <th>Time to and from source (Hour : minute)</th> </tr> <tr> <th>(1)</th> <th>(2)</th> <th>(3)</th> <th>(4)</th> </tr> </thead> <tbody> <tr> <td>34.4.1 Wet Season</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/> · <input type="checkbox"/></td> <td><input type="checkbox"/> : <input type="checkbox"/></td> </tr> <tr> <td>34.4.2 Dry Season</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/> · <input type="checkbox"/></td> <td><input type="checkbox"/> : <input type="checkbox"/></td> </tr> </tbody> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Main Source of drinking water</p> <p>Piped water.....01</p> <p>Protected well.....02</p> <p>Protected/covered spring.....03</p> <p>Unprotected Well.....04</p> <p>Unprotected spring.....05</p> <p>Surface water (lake/dam/river/stream)06</p> <p>Covered rainwater catchment.....07</p> <p>Uncovered rainwater catchment 08</p> <p>Water Vendor.....09</p> <p>Tanker truck.....10</p> <p>Bottled water.....11</p> <p>Other (Specify).....98</p> </div>		Season	Main source of drinking water	Distance to source (in km)	Time to and from source (Hour : minute)	(1)	(2)	(3)	(4)	34.4.1 Wet Season	<input type="checkbox"/>	<input type="checkbox"/> · <input type="checkbox"/>	<input type="checkbox"/> : <input type="checkbox"/>	34.4.2 Dry Season	<input type="checkbox"/>	<input type="checkbox"/> · <input type="checkbox"/>	<input type="checkbox"/> : <input type="checkbox"/>							
Main Source of energy for																														
34.3.1 Lighting <input type="checkbox"/>	34.3.2 Cooking <input type="checkbox"/>																													
Season	Main source of drinking water	Distance to source (in km)	Time to and from source (Hour : minute)																											
(1)	(2)	(3)	(4)																											
34.4.1 Wet Season	<input type="checkbox"/>	<input type="checkbox"/> · <input type="checkbox"/>	<input type="checkbox"/> : <input type="checkbox"/>																											
34.4.2 Dry Season	<input type="checkbox"/>	<input type="checkbox"/> · <input type="checkbox"/>	<input type="checkbox"/> : <input type="checkbox"/>																											
34.5 Access to toilet facilities		34.6 Food consumption patterns																												
<p>34.5.1 What type of toilet does your hh use <input type="checkbox"/></p> <div style="border: 1px solid black; padding: 5px;"> <p>Type of toilet</p> <p>No toilet/bush.....1</p> <p>Flush toilet.....2</p> <p>Pit latrine - traditional...3</p> <p>Improved pit latrine - hh owned.....4</p> <p>Other type (specify).....5</p> </div>		<p>34.6.1 Number of meals the hh normally has per day <input type="checkbox"/></p> <p>34.6.2 Number of days hh consumed meat last week <input type="checkbox"/></p> <p>34.6.3 How often did the hh have problems in satisfying the food needs of the hh last year? <input type="checkbox"/></p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Problems satisfying hh food needs (row 34.6.3)</p> <p>Never.....1</p> <p>Seldom.....2</p> <p>Sometimes.....3</p> <p>Often.....4</p> <p>Always.....5</p> </div>																												
34.7 Source of Household income																														
<p>34.7.1 What is the households main source of cash income? <input type="checkbox"/></p> <div style="border: 1px solid black; padding: 5px;"> <p>Source of Income codes</p> <p>Sale of food crops.....01</p> <p>Sale of Livestock.....02</p> <p>Sale of livestock products.....03</p> <p>Sale of cash crops.....04</p> <p>Sale of forest products.....05</p> <p>Business income.....06</p> <p>Wages or salaries in cash.....07</p> <p>Other casual cash earnings.....08</p> <p>Cash remittances.....09</p> <p>Fishing.....10</p> <p>Other.....98</p> <p>Not applicable.....99</p> </div>																														

Back Page Reference material									
This page contains reference information that may be required to complete some of the questions in the questionnaire.									
Weights and measures			Conversions						
1 hectare	= 10,000 sq metres	(100 x 100 metres)	1 hectare	= 2.47 acres					
1 kilometre	= 1000 metres	1	mile	= 1.61 Kilometres					
1 acre	= 4840 square yards	(110 x 44 yards)							
Kg equivalents									
The following standards may be used as a guide to obtain kg if the reported unit is different. Only use these conversions if the respondent is unable to provide weights in kgs.									
Crop Name	Number of Kgs		Non-standard		Crop Name	Number of Kgs		Non-standard	
	Standard		Name	kgs		Standard		Name	kgs
	Bag	Tin				Bag	Tin		
11 Maize	100	18	Rumbel	140	86 Cabbage	50			
12 Paddy	75	15			87 Tomatoes	90			
13 Sorghum	100	18			88 Spinach	45			
14 Bulrush Millet	100	18			89 Carrot	110			
15 Finger Millet	120	20			90 Chillies	85			
16 Wheat	75	15			91 Amaranths	50			
17 Barley	75	15			92 Pumpkins	60			
21 Cassava	60	12			93 Cucumber	80			
22 Sweet Potatoe	80	16			94 Egg Plant	70			
23 Irish potatoes	80	16			95 Water Mellon	80			
24 Yams	80	16			96 Cauliflower	50			
25 Cocoyams	80	16			52 Sisal	130			
26 Onions	80	16			54 Coffee	55			
27 Ginger	75	15			55 Tea	80			
31 Beans	100	20			56 Cacao	60			
32 Cowpeas	100	20			57 Rubber				
33 Green ram	100	20			58 Wattle	90			
34 Pigeon pea	100	20			59 Kapok				
35 Chick peas	100	20			60 Sugar Cane	120			
36 Bambara nut	100	20			61 Cardamom	100			
41 Sunflower	80	12			71 Banana	120			
42 Simsim	100	20			72 Avocado	140			
43 Groundnut	50	10			73 Mangoes	130			
47 Soybeans	100	20			74 Papaw	100			
48 Caster seed	100	20			76 Orange	130			
75 Pineapple	90	18			77 Grape fruit	120			
50 Cotton	50	10			78 Grapes	80			
51 Tobacco	70	14			79 Mandarin/tan	110			
53 Pyrethrum	60	12			80 Guava	110			
62 Jute	50	10			81 Plums	110			
44 Palm Oil	100				82 Apples	110			
45 Coconut	75				83 Pears	110			
46 Cashewnut	80				84 Pitches	110			
<p>For official use only: If a question has a query, an indication will be made by the supervisor/data entry controller on the front page of the questionnaire. This space is to note what and where the problem is, the action required to be taken and the responsible person to take follow up action.</p> <p>Nature of the problem:</p> <p>_____</p> <p>_____</p> <p>_____</p>									
<p>Action Required: National supervisor action <input type="checkbox"/> Field supervisor action <input type="checkbox"/></p> <p>Overall Status: Does not affect overall integrity of the questionnaire. <input type="checkbox"/> Discard and resample <input type="checkbox"/> More data is required before it can be used <input type="checkbox"/> Record as missing data <input type="checkbox"/></p>									

Average/maximum yields									
Use this table to compare the yields calculated in sections 7.1, 7.2, and 7.3. They are STRICTLY to be used as guidelines only and the sole purpose is to assist in getting the correct area and harvest for each crop									
Crop Name	kg/ha		kg/acre		Crop Name	kg/ha		kg/acre	
	Average	Max	Average	Max		Average	Max	Average	Max
11 Maize	1200	8250	486	2530	86 Cabbage			0	0
12 Paddy	700	4000	283	1619	87 Tomatoes			0	0
13 Sorghum	750	3500	304	1417	88 Spinach			0	0
14 Bulrush Millet	350	3000	142	1215	9 Carrot			0	0
15 Finger Millet	300	2500	121	1012	0 Chillies			0	0
16 Wheat	1200	4500	486	1822	91 Amaranths			0	0
17 Barley	1400	2300	567	931	2 Pumpkins			0	0
21 Cassava	3000	7000	1215	2834	93 Cucumber			0	0
22 Sweet Potato	800	8000	243	3239	94 Egg Plant			0	0
23 Irish potatoes	750	8500	304	3441	95 Water Mellon			0	0
24 Yams	4000	10000	1619	4049	96 Cauliflower			0	0
25 Cocoyams	2500	5000	1012	2024	2 Sisal	800	25000	324	10121
26 Onions			0	0	54 Coffee	500	100	202	40
27 Ginger			0	0	55 Tea	2500	10000	1012	4049
31 Beans	400	1300	162	526	56 Cacao	200	1000	81	405
32 Cowpeas	300	1750	121	709	57 Rubber	400	1400	162	567
33 Green gram			0	0	58 Wattle			0	0
34 Pigeon pea	800	2000	243	810	9 Kapok			0	0
35 Chick peas	500	1500	202	607	0 Sugar Cane	60000	150000	24291	60729
36 Bambara nut	600	4000	243	1619	61 Cardamom			0	0
41 Sunflower	600	1700	243	688	71 Banana	10000	50000	4049	20243
42 Simsim	300	1000	121	495	72 Avocado			0	0
43 Groundnut	800	4000	243	1619	73 Mangoes	10000	25000	4049	10121
47 Soybeans	1300	2500	526	1012	74 Papaw	50000	70000	20243	28340
48 Caster seed	300	750	121	304	6 Orange	20000	40000	8097	16184
75 Pineapple	25000	60000	10121	24291	7 Grape fruit	30000	50000	12146	20243
50 Cotton	300	1500	121	607	8 Grapes	5000	30000	2024	12146
51 Tobacco	500	2000	202	810	79 Mandarin/tan	20000	40000	8097	16184
53 Pyrethrum		8	0	0	0 Guava	7000	35000	2834	14170
62 Jute	800	3500	324	1417	81 Plums			0	0
44 Palm Oil	1200	5000	486	2024	2 Apples			0	0
45 Coconut	2000	8000	810	3239	83 Pears			0	0
46 Cashewnut	9	80/tree	4	#VALUE!	84 Pitches			0	0

APPENDEX III. b

Community Questionnaire

Average/maximum yields									
Use this table to compare the yields calculated in sections 7.1, 7.2, and 7.3. They are STRICTLY to be used as guidelines only and the sole purpose is to assist in getting the correct area and harvest for each crop									
Crop Name	kg/ha		kg/acre		Crop Name	kg/ha		kg/acre	
	Average	Max	Average	Max		Average	Max	Average	Max
11 Maize	1200	6250	486	2530	86 Cabbage			0	0
12 Paddy	700	4000	283	1619	87 Tomatoes			0	0
13 Sorghum	750	3500	304	1417	88 Spinach			0	0
14 Bulrush Millet	350	3000	142	1215	9 Carrot			0	0
15 Finger Millet	300	2500	121	1012	0 Chillies			0	0
16 Wheat	1200	4500	486	1822	91 Amaranths			0	0
17 Barley	1400	2300	567	931	2 Pumpkins			0	0
21 Cassava	3000	7000	1215	2834	93 Cucumber			0	0
22 Sweet Potato	600	8000	243	3239	94 Egg Plant			0	0
23 Irish potatoes	750	8500	304	3441	95 Water Mellon			0	0
24 Yams	4000	10000	1619	4049	96 Cauliflower			0	0
25 Cocoyams	2500	5000	1012	2024	2 Sisal	800	25000	324	10121
26 Onions			0	0	54 Coffee	500	100	202	40
27 Ginger			0	0	55 Tea	2500	10000	1012	4049
31 Beans	400	1300	162	526	56 Cacao	200	1000	81	405
32 Cowpeas	300	1750	121	708	57 Rubber	400	1400	162	567
33 Green gram			0	0	58 Wattle			0	0
34 Pigeon pea	600	2000	243	810	9 Kapok			0	0
35 Chick peas	500	1500	202	607	0 Sugar Cane	60000	150000	24291	60729
36 Bambara nut	600	4000	243	1619	61 Cardamom			0	0
41 Sunflower	600	1700	243	688	71 Banana	10000	50000	4049	20243
42 Simsim	300	1000	121	405	72 Avocado			0	0
43 Groundnut	600	4000	243	1619	73 Mangoes	10000	25000	4049	10121
47 Soybeans	1300	2500	526	1012	74 Papaw	50000	70000	20243	28340
48 Caster seed	300	750	121	304	6 Orange	20000	40000	8097	16184
75 Pineapple	25000	60000	10121	24281	7 Grape fruit	30000	50000	12146	20243
50 Cotton	300	1500	121	607	8 Grapes	5000	30000	2024	12146
51 Tobacco	500	2000	202	810	79 Mandarin/tan	20000	40000	8097	16184
53 Pyrethrum		8	0	0	0 Guava	7000	35000	2834	14170
62 Jute	800	3500	324	1417	81 Plums			0	0
44 Palm Oil	1200	5000	486	2024	2 Apples			0	0
45 Coconut	2000	8000	810	3239	83 Pears			0	0
46 Cashewnut	9	60/tree	4	#VALUE!	84 Pitches			0	0

Average/maximum yields									
Use this table to compare the yields calculated in sections 7.1, 7.2, and 7.3. They are STRICTLY to be used as guidelines only and the sole purpose is to assist in getting the correct area and harvest for each crop									
Crop Name	kg/ha		kg/acre		Crop Name	kg/ha		kg/acre	
	Average	Max	Average	Max		Average	Max	Average	Max
11 Maize	1200	6250	486	2530	86 Cabbage			0	0
12 Paddy	700	4000	283	1619	87 Tomatoes			0	0
13 Sorghum	750	3500	304	1417	88 Spinach			0	0
14 Bulrush Millet	350	3000	142	1215	9 Carrot			0	0
15 Finger Millet	300	2500	121	1012	0 Chillies			0	0
16 Wheat	1200	4500	486	1822	91 Amaranths			0	0
17 Barley	1400	2300	567	931	2 Pumpkins			0	0
21 Cassava	3000	7000	1215	2834	93 Cucumber			0	0
22 Sweet Potato	800	8000	243	3239	94 Egg Plant			0	0
23 Irish potatoes	750	8500	304	3441	95 Water Mellon			0	0
24 Yams	4000	10000	1619	4049	96 Cauliflower			0	0
25 Cocoyams	2500	5000	1012	2024	2 Sisal	800	25000	324	10121
26 Onions			0	0	54 Coffee	500	100	202	40
27 Ginger			0	0	55 Tea	2500	10000	1012	4049
31 Beans	400	1300	162	526	56 Cacao	200	1000	81	405
32 Cowpeas	300	1750	121	709	57 Rubber	400	1400	162	567
33 Green gram			0	0	58 Wattle			0	0
34 Pigeon pea	800	2000	243	810	9 Kapok			0	0
35 Chick peas	500	1500	202	607	0 Sugar Cane	60000	150000	24291	60729
36 Bambara nut	600	4000	243	1619	61 Cardamom			0	0
41 Sunflower	600	1700	243	688	71 Banana	10000	50000	4049	20243
42 Simsim	300	1000	121	405	72 Avocado			0	0
43 Groundnut	800	4000	243	1619	73 Mangoes	10000	25000	4049	10121
47 Soybeans	1300	2500	526	1012	74 Papaw	50000	70000	20243	28340
48 Carter seed	300	750	121	304	6 Orange	20000	40000	8097	16184
75 Pineapple	25000	60000	10121	24281	7 Grape fruit	30000	50000	12146	20243
50 Cotton	300	1500	121	607	8 Grapes	5000	30000	2024	12146
51 Tobacco	500	2000	202	810	79 Mandarin/tan	20000	40000	8097	16184
53 Pyrethrum		8	0	0	0 Guava	7000	35000	2834	14170
62 Jute	800	3500	324	1417	81 Plums			0	0
44 Palm Oil	1200	5000	486	2024	2 Apples			0	0
45 Coconut	2000	8000	810	3239	83 Pears			0	0
46 Cashewnut	9	80/tree	4	#VALUE!	84 Pitches			0	0

Average/maximum yields					Use this table to compare the yields calculated in sections 7.1, 7.2, and 7.3. They are STRICTLY to be used as guidelines only and the sole purpose is to assist in getting the correct area and harvest for each crop				
Crop Name	kg/ha		kg/acre		Crop Name	kg/ha		kg/acre	
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14 Bulrush Millet	350	3000	142	1215	9 Carrot			0	0
15 Finger Millet	300	2500	121	1012	0 Chillies			0	0
16 Wheat	1200	4500	486	1822	91 Amaranths			0	0
17 Barley	1400	2300	567	931	2 Pumpkins			0	0
21 Cassava	3000	7000	1215	2834	93 Cucumber			0	0
22 Sweet Potato	800	8000	243	3239	94 Egg Plant			0	0
23 Irish potatoes	750	8500	304	3441	95 Water Mellon			0	0
24 Yams	4000	10000	1619	4049	96 Cauliflower			0	0
25 Cocoyams	2500	5000	1012	2024	2 Sisal	800	25000	324	10121
26 Onions			0	0	54 Coffee	500	100	202	40
27 Ginger			0	0	55 Tea	2500	10000	1012	4049
31 Beans	400	1300	162	526	56 Cacao	200	1000	81	405
32 Cowpeas	300	1750	121	708	57 Rubber	400	1400	162	567
33 Green gram			0	0	58 Wattle			0	0
34 Pigeon pea	800	2000	243	810	9 Kapok			0	0
35 Chick peas	500	1500	202	607	0 Sugar Cane	60000	150000	24291	60729
36 Bambara nut	800	4000	243	1619	61 Cardamom			0	0
41 Sunflower	800	1700	243	688	71 Banana	10000	50000	4049	20243
42 Sinsim	300	1000	121	405	72 Avocado			0	0
43 Groundnut	800	4000	243	1619	73 Mangoes	10000	25000	4049	10121
47 Soybeans	1300	2500	526	1012	74 Papaw	50000	70000	20243	28340
48 Caster seed	300	750	121	304	6 Orange	20000	40000	8087	16184
75 Pineapple	25000	60000	10121	24291	7 Grape fruit	30000	50000	12146	20243
50 Cotton	300	1500	121	607	8 Grapes	5000	30000	2024	12146
51 Tobacco	500	2000	202	810	79 Mandarin/tan	20000	40000	8087	16184
53 Pyrethrum		8	0	0	0 Guava	7000	35000	2834	14170
62 Jute	800	3500	324	1417	81 Plums			0	0
44 Palm Oil	1200	5000	486	2024	2 Apples			0	0
45 Coconut	2000	8000	810	3239	83 Pears			0	0
46 Cashewnut	9	80/tree	4	#VALUE!	84 Pitches			0	0

Average/maximum yields					Average/maximum yields				
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26 Onions			0	0	34 Coffee	500	100	202	40
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32 Cowpeas	300	1750	121	709	57 Rubber	400	1400	162	567
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34 Pigeon pea	800	2000	243	810	9 Kapok			0	0
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36 Bambara nut	600	4000	243	1819	61 Cardamom			0	0
41 Sunflower	600	1700	243	688	71 Bananas	10000	50000	4049	20243
42 Simsim	300	1000	121	405	72 Avocado			0	0
43 Groundnut	800	4000	243	1819	73 Mangoes	10000	25000	4049	10121
47 Soybeans	1300	2500	526	1012	74 Papaw	50000	70000	20243	28340
48 Caster seed	300	750	121	304	6 Orange	20000	40000	8097	18194
75 Pineapple	25000	60000	10121	24291	7 Grape fruit	30000	50000	12146	20243
50 Cotton	300	1500	121	607	8 Grapes	5000	30000	2024	12146
51 Tobacco	500	2000	202	810	79 Mandarin/tan	20000	40000	8097	18194
53 Pyrethrum		8	0	0	0 Guava	7000	35000	2834	14170
62 Jute	800	3500	324	1417	81 Plums			0	0
44 Palm Oil	1200	5000	488	2024	2 Apples			0	0
45 Coconut	2000	8000	810	3239	83 Pears			0	0
46 Cashewnut	9	80/tree	4	#VALUE!	84 Ptches			0	0

APPENDEX III. c

Village Listing Forms

Average/maximum yields					Use this table to compare the yields calculated in sections 7.1, 7.2, and 7.3. They are STRICTLY to be used as guidelines only and the sole purpose is to assist in getting the correct area and harvest for each crop				
Crop Name	kg/ha		kg/acre		Crop Name	kg/ha		kg/acre	
	Average	Max	Average	Max		Average	Max	Average	Max
11 Maize	1200	8250	488	2530	86 Cabbage			0	0
12 Paddy	700	4000	283	1819	87 Tomatoes			0	0
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15 Finger Millet	300	2500	121	1012	0 Chillies			0	0
16 Wheat	1200	4500	488	1822	91 Amaranths			0	0
17 Barley	1400	2300	567	931	2 Pumpkins			0	0
21 Cassava	3000	7000	1215	2834	93 Cucumber			0	0
22 Sweet Potato	800	8000	243	3239	94 Egg Plant			0	0
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25 Cocoyams	2500	5000	1012	2024	2 Sisal	800	25000	324	10121
26 Onions			0	0	54 Coffee	500	100	202	40
27 Ginger			0	0	55 Tea	2500	10000	1012	4049
31 Beans	400	1300	162	526	56 Cacao	200	1000	81	405
32 Cowpeas	300	1750	121	708	57 Rubber	400	1400	162	567
33 Green gram			0	0	58 Wattle			0	0
34 Pigeon pea	600	2000	243	810	9 Kapok			0	0
35 Chick peas	500	1500	202	607	0 Sugar Cane	60000	150000	24291	60729
36 Bambara nut	600	4000	243	1819	61 Cardamom			0	0
41 Sunflower	600	1700	243	688	71 Banana	10000	50000	4049	20243
42 Simsim	300	1000	121	405	72 Avocado			0	0
43 Groundnut	600	4000	243	1819	73 Mangoes	10000	25000	4049	10121
47 Soybeans	1300	2500	526	1012	74 Papaw	50000	70000	20243	28340
48 Caster seed	300	750	121	304	6 Orange	20000	40000	8097	18194
75 Pineapple	25000	60000	10121	24281	7 Grape fruit	30000	50000	12146	20243
50 Cotton	300	1500	121	607	8 Grapes	5000	30000	2024	12148
51 Tobacco	500	2000	202	810	79 Mandarin/tan	20000	40000	8097	18194
53 Pyrethrum		8	0	0	0 Guava	7000	35000	2834	14170
62 Jute	800	3500	324	1417	81 Plums			0	0
44 Palm Oil	1200	5000	488	2024	2 Apples			0	0
45 Coconut	2000	8000	810	3239	83 Pears			0	0
46 Cashewnut	9	80/tnoo	4	#VALUE!	84 Pitches			0	0

Average/maximum yields					Average/maximum yields				
Use this table to compare the yields calculated in sections 7.1, 7.2, and 7.3. They are STRICTLY to be used as guidelines only and the sole purpose is to assist in getting the correct area and harvest for each crop									
Crop Name	kg/ha		kg/acre		Crop Name	kg/ha		kg/acre	
	Average	Max	Average	Max		Average	Max	Average	Max
11 Maize	1200	8250	486	2530	86 Cabbage			0	0
12 Paddy	700	4000	283	1819	87 Tomatoes			0	0
13 Sorghum	750	3500	304	1417	88 Spinach			0	0
14 Bulrush Millet	350	3000	142	1215	9 Carrot			0	0
15 Finger Millet	300	2500	121	1012	0 Chillies			0	0
16 Wheat	1200	4500	486	1822	91 Amaranths			0	0
17 Barley	1400	2300	567	931	2 Pumpkins			0	0
21 Cassava	3000	7000	1215	2834	93 Cucumber			0	0
22 Sweet Potato	800	8000	243	3239	94 Egg Plant			0	0
23 Irish potatoes	750	8500	304	3441	95 Water Mellon			0	0
24 Yams	4000	10000	1619	4049	96 Cauliflower			0	0
25 Cocoyams	2500	5000	1012	2024	2 Sisal	800	25000	324	10121
26 Onions			0	0	54 Coffee	500	100	202	40
27 Ginger			0	0	55 Tea	2500	10000	1012	4049
31 Beans	400	1300	162	528	56 Cacao	200	1000	81	405
32 Cowpeas	300	1750	121	709	57 Rubber	400	1400	162	567
33 Green gram			0	0	58 Wattle			0	0
34 Pigeon pea	600	2000	243	810	9 Kapok			0	0
35 Chick peas	500	1500	202	607	0 Sugar Cane	60000	150000	24291	60729
36 Bambara nut	600	4000	243	1819	61 Cardamom			0	0
41 Sunflower	600	1700	243	688	71 Banana	10000	50000	4049	20243
42 Simsim	300	1000	121	405	72 Avocado			0	0
43 Groundnut	600	4000	243	1819	73 Mangoes	10000	25000	4049	10121
47 Soybeans	1300	2500	526	1012	74 Papaw	50000	70000	20243	28340
48 Caster seed	300	750	121	304	6 Orange	20000	40000	8097	18194
75 Pineapple	25000	60000	10121	24291	7 Grape fruit	30000	50000	12146	20243
50 Cotton	300	1500	121	607	8 Grapes	5000	30000	2024	12146
51 Tobacco	500	2000	202	810	79 Mandarin/tan	20000	40000	8097	18194
53 Pyrethrum			0	0	0 Guava	7000	35000	2834	14170
62 Jute	800	3500	324	1417	81 Plums			0	0
44 Palm Oil	1200	5000	486	2024	2 Apples			0	0
45 Coconut	2000	8000	810	3239	83 Pears			0	0
46 Cashewnut	9	80/tree	4	#VALUE!	84 Pitches			0	0

Average/maximum yields					Use this table to compare the yields calculated in sections 7.1, 7.2, and 7.3. They are STRICTLY to be used as guidelines only and the sole purpose is to assist in getting the correct area and harvest for each crop				
Crop Name	kg/ha		kg/acre		Crop Name	kg/ha		kg/acre	
	Average	Max	Average	Max		Average	Max	Average	Max
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14 Bulrush Millet	350	3000	142	1215	9 Carrot			0	0
15 Finger Millet	300	2500	121	1012	0 Chillies			0	0
16 Wheat	1200	4500	486	1822	91 Amaranths			0	0
17 Barley	1400	2300	567	931	2 Pumpkins			0	0
21 Cassava	3000	7000	1215	2834	93 Cucumber			0	0
22 Sweet Potato	800	8000	243	3239	94 Egg Plant			0	0
23 Irish potatoes	750	8500	304	3441	95 Water Mellon			0	0
24 Yams	4000	10000	1619	4049	96 Cauliflower			0	0
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44 Palm Oil	1200	5000	486	2024	2 Apples			0	0
45 Coconut	2000	8000	810	3239	83 Pears			0	0
46 Cashewnut	9	80/tree	4	#VALUE!	84 Pitches			0	0

Cereals

Legumes/Pulses

Fertiliser Use

